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PRINCIPLES OF AGRICULTURAL EDUCATION IN NIGERIAN PUBLIC SCHOOLS

Iowa State University PH.D. 1985

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Principles of agricultural education in Nigerian public schools

by

Emmanuel Ibezimako Nwozuzu

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of the
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DOCTOR OF PHILOSOPHY

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INTRODUCTION

When Nigeria's agricultural production declined during the years 1967 to 1983, the consequences were serious. Many experts had labored to adduce the extent of these consequences and the reasons for the negative turn of events. Before the advent of the "oil boom," Nigeria had depended on its agriculture to fund its internal and external liabilities. During the colonial period and just after independence, agriculture was taken more seriously. At that time, almost everybody depended on agriculture for a livelihood, including people employed in other jobs who also maintained farms in their villages. Agriculture was accorded a primary place in the Nigerian society, but since independence, people's values have changed.

The decline in agricultural production in Nigeria had been sufficiently elaborated by Apeldorn in 1981 in his book, Perspectives of Famine and Drought in Nigeria. He maintained that declining soil fertility, lack of incentives to farmers, increasing population, the effects of rural to urban migration, and the effects of colonization had been responsible for the food disaster in Nigeria. There seemed a never-ending list of reasons why Nigeria could no longer feed itself. Some experts thought the land tenure system was at fault. Others blamed it on the number of small farms. Even the tropical weather was condemned. The low level of education of the Nigerian farmers was viewed by many as the reason for the decline in the nation's agricultural production. Only relevant education can lead to improved agricultural

production. In this decade and the century beyond, it is appropriate to say that farmers need education, and the type of education which future farmers receive while at school should be called to question. It should be carefully designed, implemented, and monitored.

A look at the type of agricultural education studied in Nigeria's public school system shows a glaring default. It is taken as one of the grammar school subjects. Learning is mental and with no direct application to food production and hunger in Nigeria. Agricultural science introduced in the secondary school curriculum in the early sixties is still regarded as a means to making good grades on the West African School Certificate Examination. Students who enrolled in the subject were regarded by parents and peers as academic failures. Good students were discouraged from enrolling in agricultural courses and those students who did enroll in these courses used them as a stepping stone to white collar government jobs. During this time, Nigerians starved in the midst of plenty.

The federal government of Nigeria realized the danger and supported the Nigerian Curriculum Conference of 1969 at a time Nigeria was at civil war. At no other time had the relevance of the Nigerian educational system been called to be accountable than at that period. In 1973, the government, following the recommendations made at that conference, issued a paper describing the national policy on education. In the paper, the government suggested that schools provide vocational education along with academic learning in a comprehensive school setting. It was observed that the government did not specify a plan for

production-based agricultural education in the nation's schools. The teacher and the student were left to work out their own plans for agricultural education. People wondered how agricultural science, which as already in place in the school curriculum differed from the newly recommended vocational education. It seemed to the author that the reason teachers had not taken the initiative in planning and implementing a new agricultural education curriculum was that, being themselves the product of the system which emphasized general education, they wondered what the components of the new curriculum would be. In addition, they feared the opposition from parents. Such fears were not totally unfounded. There had been different signs of opposition toward agricultural education programs even in countries that had developed such programs. Their disagreements were the result of implementing goals and objectives in public school which were not consistent with current societal beliefs and aspirations. The beliefs and aspirations of education were outmoded, causing them to lag behind the realities of the times. Since the needs of society are always changing, a systematic way of assessing the beliefs and aspirations about what people consider important about agricultural education had to be devised and then implemented in the school.

One of the most attractive, well-planned models for implementing change in agricultural education was begun in 1976 by the Agricultural Education Department at the Iowa State University in a project entitled "Strategies for Curriculum Change in Agricultural and Agribusiness Education." The project used Tyler's (43) model for curriculum

development as the basis for all project activities. Tyler suggested that it is important to assess the philosophy of the benefactors of a program in a systematic way before the educator undertakes to set out the objectives of a program. Tyler maintained that it is certainly true that in the final analysis objectives should reflect the value judgments of those responsible for a school. When a comprehensive philosophy of education is used as a basis for decisions, the probability is increased that judgments about objectives will be wise and that school goals will have greater validity.

On the sources for getting the information for the determination of objectives, Tyler (43, p. 4) stated, "Accepting the principle that investigations can be made which will provide information and knowledge useful in deciding about objectives, the question is then raised what sources can be used in getting information that will be helpful in this way."

In the study conducted by the Department of Agricultural Education at Iowa State University, researchers determined who should provide information for the determination of objectives for curriculum change. They surveyed students, teachers, principals and school superintendents. The present study is a survey of those people who the author believed had the greatest direct and/or indirect input on the type of agricultural education program in Nigeria, namely, students and parents as the benefactors of the program, teachers and principals and headmasters as the implementers of the program, government staff as the policy makers in the program, and farmers and agribusiness people as employers of the

products of the program.

This investigation was proposed to expand the action started by the Nigerian Federal Government as a result of the curriculum conference held in 1969. The model for change in agricultural education curriculum used by Agricultural Education Department at the Iowa State University was used with a view of determining its implications in Nigeria. This study was designed to determine the degree of importance of principles of agricultural education to Nigerians. The product of such an investigation will be used in recommending policy for agricultural education in Nigerian public schools. The results will also be used to recommend plans for appropriate curriculum changes in Nigerian public education to include the study of agriculture. Specific objectives of the study were to:

(1) Determine and analyze the attitudes of selected groups about public school agriculture in Nigeria.

(2) Identify basic principles which undergird the agricultural education in the Nigerian system of public education.

(3) Describe basic principles for public school agricultural education in Nigerian public schools based on the outcomes for objectives one and two.

(4) Recommend activities that should be followed to make public school agricultural education more adaptable, flexible and tuned to the needs of a local environment.

REVIEW OF LITERATURE

The need to produce food to feed Nigeria's increasing population has become recognized as one of the most challenging problems to the nation. To be successful in solving the nation's food production problem, Nigeria needs to the commitment of its human and material resources. The commitment of education to agricultural development has come under very serious criticism. Fafunwa (12), in his book entitled History of Education in Nigeria published in 1974, condemned the Nigerian educational curriculum saying that it was "conceived largely as a literary education" and the products of such a system had become known as "men of the book, men of literature, men of the Bible." For almost a century, according to Fafunwa, the educational system emphasized reading, writing, and arithmetic. Lewis (25), in a book entitled Society, Schools and Progress in Nigeria, traced the development of secondary and primary school education in Nigeria. He observed that even though some practical education was introduced in some Nigerian schools, along with the study of English, mathematics, and the New Testament, the bookishness of the instruction provided had become the subject of critical remarks. Lewis attributed the development of literary curriculum to the demand of the government and commerce for 'white collar' employees.

The apparent dissatisfaction of Nigerians with their educational system was summarized by Kellaway (22) in his book, Education for Living, when he wrote about the educational system in developing countries. He

maintained that the products of the educational system in developing countries scorned the jobs that concern the survival of the society and that jobs that have to do with the production of essentials are the jobs that are scorned the most. Farming is a case in point. Subsistence agriculture in Nigeria employs more than 70 percent of the population, and yet not enough food is produced for Nigeria's growing urban and rural population. The results of the demise of subsistence agriculture in Nigeria have become rising food prices, hunger, abandonment of farms by youth and increased food import. Sano (36), writing in his book entitled The Political Economy of Food in Nigeria between 1960 and 1981, observed that food was the most essential commodity in a developing country and its availability could be improved through relevant education. Fafunwa (12) made a claim that policies in favor of literary education in schools were dictated by grants-in-aid policies of government. Okafor (30) pointed out that the government promoted general education against the recommendations it had established. The above statements recognize the central position occupied by the current government in determining what the purposes, goals and objectives of education in Nigeria should be.

The undercurrents of change in the Nigerian educational system which eventually led to the Federal Government's direct intervention in education in the 1970s were described by Dienye (11) in his article published in the Journal of the Nigeria Educational Research Council in 1983. He pointed out that Nigeria's population was an important factor that encouraged the planning of a suitable education for the nation. He

pointed out that since the population of Nigeria was growing at a rate of 3.2 percent per annum, the expected population of Nigeria would be 149 million in the year 2000. Dienye pointed out that the greater part of the population would be made up of young people of school age. He based his forecast on data published by the Population Reference Bureau, Inc., 1982. The growth rate, according to Dienye, was the consequence of high birth rate (about 50 births or more per thousand population per annum) and a rapidly declining death rate (about 18 deaths per thousand population annually). The rate of infant mortality was still high (about 157 per thousand live births) (11). It was further revealed that the population is experiencing a high youth dependency ratio since the bulk of the population in the age group 0-14 years constituted about 47 percent of the total population.

According to Sano (36, p. 24), the greatest danger to the Nigerian political system was declining food production rather than increasing population. Sano concluded that the decline in food production and increasing food consumer prices would lead to rising food bills for Nigerians. This, in turn, would lead to starvation and dissatisfaction among many Nigerians.

Petroleum oil constituted the greatest foreign exchange earner for Nigerian economic development. However, there have been increases and decreases in the prices of world petroleum oil, and the future of oil prices is uncertain. In the 1970s, world oil prices reached unprecedented highs. Since then, prices of oil have declined. Many people drew attention to the fact that petroleum oil was a depleting asset.

Because once depleted it could not be replaced, wealth earned from mineral resources should be used to develop the agricultural resources of the country. The greatest asset of a nation is its human resources. Adam Smith, as cited by Akintola (3), included in his concept of fixed capital, the acquired and useful abilities of all the inhabitants or members of the society. If agricultural resources of Nigeria must be developed, the acquired and useful abilities of students who constitute a significant part of Nigeria's educated population must be utilized.

It was not a mere coincidence that the Federal Government of Nigeria yielded to the pressure from educators to call the first national curriculum conference in 1969 at the wake of Nigerian civil war. Never had the relevance of Nigeria's educational system been brought to test more than at the time of the civil war (1967 to 1970). The need for urgent reform was recognized during the preparation of the Second National Development Plan (1970 to 1974) for Nigeria, which placed emphasis on the role of education in the social and political development of Nigeria. The chapter in "Second Development Plan 1970 to 1974" opens with the controversy which existed concerning Nigerian education. The beginning of this chapter states, as cited in (3), that

> There is controversy about the objectives of educational development should be, some have suggested that education should be provided for its own sake, as a means of enriching an individual's knowledge and developing his full capacity. Others, on the other hand, held that education should seek to prepare people to undertake specific tasks and employment functions which are essential for the transformation of the society.

It should be remembered that the implied controversy was not peculiar to the Nigerian experience alone. Other classical writers had expressed opposing opinions about what curricular changes should be made. A basic question was whether to develop human beings as an end or to prepare people to undertake specific tasks which are essential for the development of the society. The lines between the conflicting ideas related to those that separate the classical educational philosophers of the past and present: supporters and critics of literary and practical education, content versus activity, and theoretical versus pragmatic education.

Rousseau, as cited by Humphreys (19), recommended that teachers "do as much as possible of teaching by doing, and fall back only when doing is out of the question." Pestalozzi, as cited by Humphreys (19), recommended "the child himself and his personal experience replace books, nature and things replace the symbols of nature, and facts and occupational activity replace reasoning and abstractions."

Dewey (9, p. 400), in his book entitled Democracy and Education, when writing about pragmatic education, maintained that "the essential feature [of pragmatic education] is to maintain continuity of knowing with an activity which purposely modifies the environment," and that learning be "organized into our disposition as to enable us to adapt the environment to our needs and to adapt our aims and desires to the situation in which we live." Dewey recommended that knowing is a continuous process activity and the environment should be modified in the event. Educational development could be seen, therefore, as a resultant

factor in the process of knowing.

Leighbody (23) summarized the relationship between theoretical learning and practice education when he said that:

> When we have a strong purpose, as well as a fixed, reason for learning something, it is easier to receive the instruction and to make progress in learning.
>
> . . . before the learning can become complete, we must put it into practice, what we are attempting to learn. Learning something new is made easier if the learning can be built upon something we already know [how to do]!
>
> If the things we have learned are useful and beneficial to us, we are satisfied with what we have accomplished, the better we retain what we have learned. The more often we use what we have learned the better we can perform or understand it.

Many authors continue to relate the act of knowing and practice. Hutchins, as cited by Park (34, p. 233), in his book entitled The Selected Readings in Philosophy of Education, insisted that "intellectual inheritance" of human beings should be given prominence in the process of education. Hutchins called for a general education which should pay less attention to student needs and more attention to theories of knowledge. He said:

> The child-centered school may be attractive to the child and no doubt it is a useful place in which the little ones may release their inhibitions and hence behave better at home. But educators cannot permit students to dictate the course of study unless they are prepared to confess that they are nothing but chaperons supervising aimless, trial-and-error process which is chiefly valuable because it keeps young people from doing something worse. . . . That [activity based instruction] amounted to a denial that there was content to education.

Horne (17, p. 430) in The Democratic Philosophy of Education. Companion to Dewey's Democracy and Education. Exposition and Comment, compared two aims of education for leisure (liberal education) and

education for the performance of specific tasks (vocational education). He pointed out the differences between vocational and cultural education, and believed that the two should not be antithetical.

> Liberal culture [education] has been linked to the notions of leisure, or purely contemplative knowledge, . . . not involving the active use of the organs of the body.
>
> . . . a vocation is life activities so directed that their consequences are significant to oneself and useful to one's associates. Synonyms for vocation are career and occupation. These are concrete terms for continuity between one's activities and society.
>
> Vocations are not limited to producing material commodities. . . . What I say to myself, lay upon myself, the way I feel toward myself, the kinds of experiences I allow and forbid myself, here is vocation behind, in, and through one's service to society. My self is much more than my distinctive aptitudes; it is all my aptitudes, attitudes, and ideas of a single conscious existence [in a society].

Horne (17, p. 245) also supported pragmatic aims in education when he addressed the subject of "'knowledge as a control situation': the communicated information does not become knowledge until it is used practically. . . . Knowledge is used to advance knowledge."

Pragmatic education was also critiqued by Horne (17, p. 243):

> We can know by reason the unexperienced and the unexperienceable. And life is much richer because of our ability to transcend experience in some forms of knowledge. We know that Einstein equation, purporting to identify electricity and gravitation has a meaning without experiencing the meaning, and without being able to make use of the meaning, and certainly without ability to use the meaning in discovering other meanings.

Horne reiterates that knowledge apart from use ceases to be knowledge and may be forgotten entirely, that the continuity of knowing with a purposeful activity modifies the environment, and that pragmatism as an educational philosophy is believed to lead to social democracy and

experimentation in education, thus giving democracy the credit for social origin of pragmatism. The rejection of bookishness went with the demand for empiricism as empiricism is activity involving first-hand knowledge. Horne suggested the link between knowledge, practice and empiricism.

The cornerstone of disagreement in Nigerian educational thought had been laid in the course of educational development in the country. It was whether the educational process should emphasize knowledge for its own sake or knowledge for the solution of practical problems. Akintola (3, p. 169), the Secretary of the Nigerian Educational Research Council, stated an opinion which many Nigerians seem to share when he said:

> It was unlikely that any society exists in which the two opinions do not operate, namely knowledge for its own sake, as a means of enriching an individual's knowledge and preparation of people to undertake specific tasks essential for the transformation of the society.

Most developing countries, according to Akintola, must sooner or later discover that greater weight must be given to education as a capital investment.

Basic Principles of Agricultural Education in Nigeria

There was a need for high quality and relevant agricultural education in Nigeria if the aims of education emphasized by the Nigeria National Policy of Education were to be realized. These aims were (14, p. 6):

1. respect for the worth and dignity of individuals;

2. faith in man's ability to make rational decisions;
3. moral and spiritual values in interpersonal and human relations;
4. shared responsibility for the common good of the society;
5. respect for the dignity of labor;
6. promotion for the emotional, physical and psychological health.

The scope of educational goals and objectives in Nigeria had become broadened to include worthwhile values. The Federal Government of Nigeria, for the first time linked the task for education with (14, p. 6):

a. inculcation of national unity;
b. inculcation of the right values;
c. mind in understanding the world;
d. acquisition of the right skills, abilities and competencies both physical and mental equipment for the individual to live and contribute to the development of the society.

These broad goals and objectives represented an obvious departure from the narrow curriculum of pre-independence period which emphasized only reading, writing and arithmetic. The problem during the post-independence period was how to effect the change from the narrow curriculum to a broader perspective in agricultural education.

Floyd (15, p. 27), in an article published in the Journal of the Nigeria Educational Research, entitled "Educational Dimensions in Agricultural Development," reviewed the linkages between education in its broadest sense and improved output in agricultural systems. He maintained that enhanced productivity of farmers would resolve some of the

socioeconomic issues in contemporary Nigeria. He recognized the part to be played by the education of future farmers when he said, "Nigeria requires appropriate, relevant education for all those involved in contributing to the enhancement of farm productivity." He continued, "We must recognize that the task of training and educating farmers to improve their methods of land and animal husbandry cannot be treated in isolation from the tasks of educating all Nigerians, of all ages, no matter their intended or actual economic pursuits."

Okorontifa suggested another important variable in the education of farmers in his article, "Education and Manpower Development," published in the Journal of Nigeria Educational Research. He summarized the constraints on agricultural education (32, p. 193):

> This [education] means the inculcation of a work ethic, and conscientious response to job assignments in whatever realm of endeavor. Other writers had drawn attention to the casual, often negligent, attitude of many workers to their assigned duties, particularly those in positions of responsibility who have been privileged to receive formal education. Nigeria experience since independence had shown that manpower however skilled was a necessary, but not a sufficient condition for job effectiveness. The missing component was of course labor commitment, or simply lack of the right attitude to work and responsibility.

A multidimensional approach to the problems of agricultural human resource development is required to educate present and future farmers.

A reconstruction of the goals and objectives of education in general and more specifically in agricultural education require thorough and systematic thought and planning. Meijabi (28, p. 50), when reporting on the purpose of secondary education at the National Curriculum Conference, raised the issue of whether special, private or public schools

had to be established in order to cater to the needs of young people who intend to enter the agricultural profession. He wondered whether students should be enticed to enter the agricultural profession or left to make their own decision about it.

Because of concern about the status of agricultural education in public schools in Europe, the British Council initiated a study to determine the status and characteristics of agricultural education in Europe. They found that (40):

1. Agricultural education in public schools was organized for students who wanted to go into agriculture as well as people who wanted to go into other jobs.
2. Attendance in schools was compulsory in schools up to the age of 16. Those who left school at age of 16 entered apprenticeship situations of which agricultural progression was one.
3. Up to 40 percent of the total number of students in schools chose to enter vocational schools where they existed.
4. The program was focussed on farmers' children.
5. The agricultural education was comprehensive in outlook. The students not only learned about agriculture but related subjects as well.
6. Students who left school between 16 to 17 were required to attend one to two days in the week till the time they were 27 years old. Further training at the discretion of the student could be obtained through day or evening classes.
7. There was community involvement. For example, the Chamber of

Commerce and school agriculture programs assisted by trade unions are responsible for all of the agricultural job training and collection of data on students participating in such programs.

8. Full-time agricultural education was the primary responsibility of education while part-time attendance to schools were the responsibility of Chambers of Commerce.

Agricultural education in the United States was of a general nature prior to 1917 throughout the United States. That attracted a comment from Humphreys (19, p. 67):

> Our agricultural program was made largely of formal phases of instruction with little thought given to the application of knowledge. Courses in agriculture in high schools were abstract with no regular relation to the boy's home environment.

The need for a new approach to agricultural education continued to attract national concern until the passage of Smith Hughes Act in February 1917. Section 10 of that Act reads, as cited by Hawkins et al. in 1951 in their book entitled Development of Vocational Education (16, p. 602):

> The contributing purpose of such education shall be to fit for useful employment, that such education shall be less than college grade and be designed to meet the needs of persons over fourteen years of age who have entered upon the work of the farm or farm at home; that such schools shall provide for directed or supervised practice in agriculture either on a farm provided by the school or other farm, for at least six months per year.

The essentials of a home project in vocational agriculture program were spelled out by the United States Federal Board of Vocational

Education (13, p. 9) as:

> 1. A carefully prepared, written project plan, calling for work to be done that is new to the learner, that is vocationally essential, that involves a considerable period of time.
> 2. An agreement between the parent, pupil, and the teacher that sets forth the principal points involved in the project, especially the learner's financial records.
> 3. Provision for group and individual instruction relating specifically to the work to be done.
> 4. Records keeping of methods, materials, time, cost, income and other cognate matters.
> 5. Reporting descriptive statistical, and complete cost accounting for the project from start to finish.
> 6. Supervision by the agricultural teacher including instruction, and assistance in anticipating and meeting difficulties that may arise.

In 1929, L. R. Humphreys (19) appointed a committee to draft a set of program objectives for the vocational agriculture program. The committee recommended seven major objectives which were accepted by the profession to guide the development of the program throughout the nation. These objectives were (19, p. 4):

1. Make a beginning and advance in farming.
2. Produce farm commodities efficiently.
3. Market farm products advantageously.
4. Conserve soil and other natural resources.
5. Manage a farm business effectively.
6. Maintain a favorable environment.
7. Participate in rural leadership activities.

Deyoe, in 1942, attempted to clarify the above objectives by restating them in the following manner (10, p. 146-147):

1. To develop abilities needed for proficiency in farming.
2. To earn money.
3. To help in the establishment of the home farm business.
4. To improve the home farm business.
5. To improve farming in the community.
6. To contribute to improve living on the farm.
7. To develop an increased interest in farming.
8. To develop attitudes and ideas of cooperation.

Bode, as cited by Childs in 1956, described how the practice aspect of vocational agriculture was implemented in schools in the United States in the following manner (5, p. 271):

> The project was introduced into American education primarily through the teaching of agriculture in the high schools. Many of these high schools did not have their own experimental farms so they adopted the plan of having pupils undertake "home projects" on their own farms. These projects included the care of poultry, sheep, pigs, cattle and horses, the selection of seeds, the rotation of crops, etc. They tended to stimulate the pupils to study and acquire information for use in actual situations and the rest of life avoided the "verbalism or bookishness" with which education is so extensively affected.

The 1963 Vocational Education Act broadened vocational education to include instruction for farm and nonfarm agricultural occupations. This Act permitted instruction on agribusiness topics in addition to instruction on production agriculture topics as being considered federally approved agricultural education programs. In 1966, R. S. Sutliff and A. W. Tenney appointed a national committee at the America Vocational Association meeting to determine what changes had taken place in vocational agriculture programs as a result of passage of the 1963 Vocational Education Act. The committee published its final report in 1966 which contained new objectives for agricultural education programs being conducted in public schools throughout the nation. The new objectives for the program were (44, p. 4-5):

1. To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture.
2. To develop agricultural competencies needed by individuals engaged or preparing to engage in agriculture.
3. To develop an understanding of and appreciation for career opportunities in agriculture and preparation

needed to enter and progress in agricultural occupations.
4. To develop an ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.
5. To develop those abilities in human relations which are essential in occupation.
6. To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social and civil responsibilities.

In Iowa, a study was conducted to determine the basic principles for agricultural and agribusiness education. The project developed eight basic principles which undergird agriculture and agribusiness education in Iowa. Agricultural and agribusiness education was defined in terms of orientation toward the following:

1. Democratic participation: Agricultural and agribusiness education was expected to be committed to democracy as a political and social philosophy and an educational methodology. Education as a discipline included recognition that values and propositions must be tested by their consequences in the lives of human beings. While the contributions of experts are vital in development, evaluation of decision making must eventually refer to the experience of those who are affected by policies and programs. The principle of democratic participation reiterates the obligation of agricultural and agribusiness to prepare the learner to become progressively better able to be self-directing, to choose and judge for oneself on the basis of the most intelligent consideration of the alternatives, and to assume accountability to oneself and to the community.

2. Pragmatic orientation and values development: This principle

was in accord with current theory of how knowledge and values are developed. It was suggested that ends and means should be taken into account while determining alternatives for achieving objectives. The source of values was human wishes, desires and wants and values that are judged in terms of consistency with the rest of our value system and the consequences of the action to which the value will lead.

3. Change through flexibility and continuity: This principle called for flexibility and adaptability of programs rather than rigidity in its attempt to enable the student to cope intelligently with constant and significant change.

4. Decision making through problem-solving: This principle recognized problem-solving as an approach to learning and method of teaching and implied active involvement of participants in discovering solutions to problems.

5. Experience centered orientation: This principle held that experience is the medium through which human beings comprehend the world.

6. Individual and social needs: This principle reminded agricultural and agribusiness educators of the need to pay some attention to biological and social needs of persons involved in agricultural programs and the social needs of the society for which the individual was being educated. It also pointed out that satisfaction with one's occupation is of great importance, both to the individual and to the efficiency of the productive process.

7. Agriculture resource management: This principle held that

subject matter in agricultural and agribusiness education is determined by individual and societal needs of the community. It reiterates that theories, ideas, and concepts used as a basis for such activity are derived from individual experiences, experimental investigation of individuals in agriculture and in other areas of the applied sciences.

8. Interrelationships of agriculture: This principle recognized the increasing interdependence between the economic and social structure of the community, the state, the nation and the world. It also recognized the idea that those engaged in agriculture must understand and cooperate with other people who have legitimate interests in agriculture, each of which have their own conceptions of public welfare.

It is important to point out the demonstrated similarities between the Rosseau, Pestalozzi, Leighbody (23), Dewey (8), the initiators of Nigerian Curriculum Change (29), and Iowa State University investigator's educational theories and those espoused in the Iowa study. They believed in democratic principle, respect for the worth and dignity of individuals, shared responsibility for the common good, knowledge with practice and the need for flexibility and continuity in educational programs.

Sheffield et al. (38) studied agricultural education in Botswana, Kenya and Tanzania. They concluded that agriculture was a subject for academic credit and that it was a popular subject among students. They further stated that (7, p. 23):

> Despite efforts to introduce agriculture and vocational subjects into schools, parental and community demand for academic education leading to high status and pay of the

> modern sector has kept most schools within academic pattern. . . . Parents perceive education as a means of escape from agriculture and manual labor.

They concluded that:

> The main justification for offering agriculture in schools was its supposed utility for conveying essential farm skills to enable pupils to begin self-employed farming careers after leaving schools; the instruction focussed on farm practice even though such skills had not been identified. . . . Refusal of parents to provide land and farming was a problem.

The Rockefeller Foundation (41) in a book entitled Strategies for Agricultural Education in Developing Countries. Agricultural Conference I, noted that one of the disadvantages confronting developing countries in their attempt to improve school agriculture was the lack of modern home farms. They pointed out that the less developed a country, the greater the need for a strong school agriculture program.

Tucker and Hemp (42) in 1981 described a data base for improving agricultural science programs in secondary schools of Sierra Leone. They concluded that schools were emphasizing theory and increasingly preparing students to pass the school certificate examination. They believed that such an examination was a hindrance to middle-level manpower requirement and development in public and private sectors of the national economy of Sierra Leone.

McNamara, president of the World Bank cited in (43), said:

> Developing countries have greatly expanded their educational systems over the past quarter of a century but much of the expansion has been misdirected. The results are seen in one of the most important paradoxes of our time: while millions of people among the educated are unemployed, millions of jobs are waiting to be done because the right education, training and a skill cannot be found.

The Department of Agricultural Education at Iowa State University organized investigations to determine the beliefs of selected groups of people in Iowa about agricultural education. The investigations were reported by Degner (6), Magill (27), Leising (24), Archer (4), Schmitt (37), and Lochmann (26). The selected groups were students, parents, teachers, principals and government officials. Respondents in each group were asked to rate, on a scale of 1 to 99, the degree of importance of each principle item. Group means were calculated for each of 90 principle variables included in the study.

These researchers found that there were significant differences among group means which led the researchers to believe that the groups differed in the way they perceived the roles of agriculture and agribusiness education in Iowa public schools. They found that in all cases, composite means for the groups were above the midpoint scale value (50), indicating that the seven basic principle areas were important to agriculture and agribusiness education in public schools.

Degner found that students rated their satisfaction with public school lowest. In general, state supervisors and teacher educators were generally similar in their perceptions. Specific points of similarity were as follows: to emphasize honesty was rated highest by all groups. To foster relationships received the lowest score.

Some points of difference also surfaced. Magill (27), in 1977, studied the perceptions of the same group about the interrelationships of agriculture. He found that all composite means were above the scale midpoint value. The groups studied scored the sub-principle,

"agriculture was more than farming," as highest. Preparing students for leadership roles had the largest number of group mean differences.

Leising (24), as a result of his study of the philosophic principle of experience in agriculture, concluded that "the emphasis on real-life situations" was most important to all groups of people surveyed. Students, as a group, placed most emphasis on providing students with the opportunity to earn money. Competition was rated lowest among all other sub-principles. Teaching knowledge, skills and abilities necessary for satisfying employment in specific agricultural occupations revealed most variation among group responses. Leising observed that laboratory experience was more important than classroom experience.

Archer (4) studied the perceived importance of problem solving in agricultural and agribusiness education. The groups he studied perceived all principle statements as being important. The problem solving principle statement rated highest was "including problem solving which involved both physical and mental activities."

Schmitt (37) studied the perceptions of the same groups toward the philosophic principle of flexibility and continuity in agriculture and agribusiness education. He concluded, among other things, that students showed the greatest dissatisfaction with the public school agricultural program.

Okorie (31) conducted a study to assess the impact of agricultural education on farm production in Eastern Nigeria. Among the several factors he reported which tended to hinder constructive efforts in modernizing agricultural practices was the lack of adequate basic

education among the farmers. He argued (31, p. 6):

> Consequently, the farmers have not participated actively in the formulation of plan to meet their needs. They have instead depended solely on the information handed down to them from above. . . . Agriculture has been taught in most elementary and secondary schools for several years, where it is known as rural science and agricultural science respectively. There has been no evidence to show that some of the students who took agricultural science in secondary schools have gone into farming. . . . the programs unquestionably require revitalization in order to make the course more attractive to a large number of students. What may be lacking is development of a basic philosophy underlying the study of agriculture in secondary schools.

Okorie (31, p. 49) recommended that:

> A consistent replacement of the farmers who are above 60 years of age with more energy and better youth of present era would greatly enhance the image as well as the production facets of agriculture in the area.

Akabue (2, p. 14) conducted a study entitled "The Role of Nigerian Secondary School Principals in Instructional Supervision." One hundred principals were randomly selected from Anambra State in such a manner that 50 percent were chosen from Anambra State and 50 percent were chosen from each local authority area in Anambra. He concluded that tasks of the secondary school principal included helping teachers with curriculum development, helping them evaluate the curriculum, and developing strategies for future improvement of instructional supervision.

Olutola (33, p. 161) investigated the need for private schools and the concept of equal educational opportunities in Nigeria. He surveyed 200 subjects who were randomly selected from educational institutions, public service and the motor park. He concluded that the concept of

equal educational opportunity was rather volatile. He stated that: "It would appear that the respondents' conception of an egalitarian society is so different from that of a democratic society that one wonders whether egalitarianism is incompatible with democracy." He suggested that it would be worthwhile for social reformers to direct their crusade towards upgrading the educational standards in the public schools rather than on intensifying the onslaught on private schools.

The Review of Literature revealed the following issues which may be of concern to agricultural education programs in Nigerian public schools:

1. Literary education received major emphasis in Nigerian public schools.
2. A controversy existed over what the objectives of public education should be in Nigeria. Some felt that education should be geared toward self-fulfillment and general education, while others felt that public school education should be seen as a capital investment and emphasize a stricter work ethic.
3. Many Nigerians seemed to be in favor of a multidimensional approach to public school education.
4. Stricter government control, as in the United States, tended to limit the development of teacher-based principles.
5. From research carried out at Iowa State University, it was observed that important differences existed between students, parents, school superintendents and teacher educators in the way they perceived the importance of basic principles of

agricultural education and agribusiness education.

6. The multidimensional approach to principle development was observed to be in line with the philosophies for education in Nigeria as described in the Nigerian National Policy of Education.

METHODS AND PROCEDURES

This chapter is presented under six major headings, namely, Problems Encountered, Construction of Questionnaire, Choice of Scale, Pre-testing, Sample Design, Choice of Interviewers and Collection of Data.

Problems Encountered

Conducting any type of investigation in Nigeria is usually met with much difficulty. Many of these difficulties were elaborated by Okorie (31, p. 36):

> These factors could be categorized as communication problems, consisting of transportation difficulties, postal agency inefficiency, and telephone irregularity where available, accommodation problem; personal interaction problem.

The problems reported by Okorie were present in Nigeria during the time the present study was carried out, but to a minimized extent. The Nigerian Federal and State governments had built roads which made rural areas accessible. Post offices had been constructed in many parts of Nigeria. Postal services were slow, and many people asked why letters took two to three weeks to be delivered. Telephone facilities had increased in number, but much of the use was regarded as "city intercoms" because it was difficult to call people in different towns.

Hotel accommodations of international standards were available in all states in the Federation, particularly in the state capitals and other major cities. Their fares tended to be high. Hotel operators justified their prices by quoting high prices in indigenous and

imported foodstuffs.

The serious problem encountered by the researcher was that the governmental rules on collecting information seemed to the writer to be unjustifiably rigid. This stiuation led the investigator to wonder if the government, with its public good will posture, supported restrictions on the use of public information. Linked with restriction of information by public officials was the resistance to change in the government institutions. There seemed to be little use made of research in establishing governmental public policy. Many people asked the writer how his study results would be used if no use had been made of previous research. The lukewarm attitude of governmental officials toward the use of research was documented by Ajayi (1) in an article entitled "The Attitudes of Teachers and School Administrators to Educational Research in Nigeria," published in 1983 in the Journal of the Nigeria Educational Research Council. The author of the paper, on the basis of data collected, concluded that "the majority of principals and teachers have an unfavorable attitude towards educational research." Ajayi (1, p. 18) did not find any differences among principals, teachers, and graduates attitudes toward the use of research results in public policy toward and administration of educational programs.

Some educational policy makers were very slow in sharing their ideas in public for the fear that they might have been misquoted and misinterpreted. Although the Federal and State governments in Nigeria have done a lot to encourage freedom of movement and access to information, most people in Nigeria do not know how to use these liberties.

The literacy rate in Nigeria ranged from about 40 percent in some parts of the country to as low as 1 percent or less in other parts of the country. This divergence in literacy rate caused some parents and farmers to decline to be interviewed for this study.

Construction of the Questionnaire

The major part of the questionnaire items used in this investigation were adapted from the investigation carried out in the Department of Agricultural Education, Iowa State University, in 1976 entitled "Strategies for Curriculum Change in Agriculture and Agribusiness Education in Iowa." The questionnaire items were carried to Nigeria and evaluated by selected Nigerian educators. Among the evaluating team were a state commissioner of education, two state chief school inspectors, three principal education officers in the Ministry of Education, five principals of local schools, five agricultural science instructors, ten students, and five farmers and agricultural business people. They were asked to evaluate, alter and comment on each item on the questionnaire. Some of their concerns were taken into account while the investigator was preparing the final revision of the questionnaire. Help was also received from the Department of Agricultural Education staff, and graduate students at Iowa State University.

The first part of the questionnaire sought information pertaining to the state, school, community, age, and level of education of the respondents. The second part of the questionnaire contained questions in eight foundational areas of agricultural education. The investigator

wrote the questions for one foundational area because they had not been developed as a part of previous studies conducted at Iowa State University. Participants in the study were asked to provide information in part one of the questionnaire and then rate each variable in part two of the questionnaire according to the degree of importance Nigerian public schools should emphasize each variable in school programs.

In general, the use of the items in part two was completed by an extensive literature review to enable the investigator to modify questions in such a way to make them useful in Nigeria's culture.

Response Scale

The investigator used a 99 point scale to elicit the perceived respondent importance for each of the questionnaire items in part two of the questionnaire. The value one on the scale was used to indicate that the item was of no importance, a scale of 50 was used to indicate that the item was of average importance, and a value of 99 on the scale was used to indicate that the item was of utmost importance.

Choice of Interviewers

In the main, the interviewers were student teachers and agricultural science teachers (115) in the selected school community areas. The investigator used their services because of the problems encountered as reported by Okorie (31). The investigator visited 35 teacher training colleges and made contact with about 98 student teachers and 43 agricultural science teachers who decided to take part as interviewers.

At each of these colleges, the investigator conducted interviewer

training sessions. Each of the training sessions lasted approximately four hours. The investigator reviewed the procedures that each interviewer was to follow and how to handle problems that might distort the validity of participant responses. A special point was made that each interviewer was to respond only to questions that would clarify for a respondent the intent of a particular survey item. They were cautioned not to permit general discussion of any instrument item until the interview had been completed.

The review of relevant literature consistently revealed that policy makers, teachers, students, parents, principals of schools and agribusiness people should influence the trend of agricultural education in Nigeria. It was also revealed that groups of people tended to differ on their perceptions or beliefs of what agricultural education should emphasize.

In order to reach people at the grassroots level of curriculum change, the researcher chose school communities in Nigeria as a means of selecting respondents to participate in the study. The investigator compiled a list of secondary schools that offered any form of agricultural education in its curriculum. The lists were compiled by personal visits to each state headquarters of the Ministry of Education. The researchers then assigned numbers to the secondary schools and randomly drew a proportionate number of schools to represent the schools that offered agricultural education from each state. The list of states, number of secondary schools that offered agricultural education and their representative sample of school

communities are presented in Table 1. Each secondary school selected was defined as a school community. The principal of the secondary school, one agricultural science teacher, two agricultural science students and each of the parents of the secondary school students were interviewed. The headmaster of the primary school and one rural science teacher nearest by distance to the secondary school were also included in the study. Farmers and agribusiness people from the school community area were also interviewed.

A total of 115 school community areas were chosen throughout the Federal Republic of Nigeria to participate in the study. The flexibility in methods adopted depended on the discretion of the teacher and the student-teacher. The flexibility was necessary in order to involve as many people as possible who were interested in participating in the study.

Participants in the study

Participants from each school community area included: (1) One principal and one headmaster; (2) One agricultural science teacher; (3) Two students; (4) One parent each of the students; (5) Two government staff officials; (6) Two farmer/agribusiness people. The list of states, number of school communities that were identified that offered agricultural education and the representative sample members are presented in Table 1.

Students

Students whose parents lived in the area and were educated tended to show interest in the study and participated in the study. Students in

Table 1. Number of respondents by state in Nigeria

State	Total school communities	Sample	Respondent groups						
			Students	Parents	Teachers	Principals and headmasters	Government staff	Farmers/ business	Total
Anambra	185 (11.1)[a]	12 (10.4)	29 (12.5)	28 (11.5)	28 (12.1)	28 (12.3)	28 (13.1)	25 (11.4)	166 (12.1)
Bauchi	25 (1.5)	2 (1.7)	4 (1.7)	4 (1.6)	4 (1.7)	4 (1.8)	4 (1.9)	0	20 (1.5)
Bendel	179 (10.7)	12 (10.4)	24 (10.3)	23 (9.4)	24 (10.4)	14 (6.1)	24 (11.3)	20 (9.1)	129 (9.4)
Benue	75 (4.5)	5 (4.4)	10 (4.3)	9 (3.7)	10 (4.3)	10 (4.4)	10 (4.7)	10 (4.5)	59 (4.3)
Borno	17 (10)	1 (0.9)	2 (0.9)	1 (0.4)	2 (0.9)	2 (0.9)	2 (0.9)	2 (0.9)	11 (0.8)
Cross River	178 (10.7)	12 (10.4)	24 (10.3)	24 (9.8)	24 (10.4)	24 (10.5)	24 (11.3)	24 (10.9)	144 (10.5)
Gongola	27 (1.6)	2 (1.7)	4 (1.7)	4 (1.6)	4 (1.7)	4 (1.8)	4 (1.9)	4 (1.8)	24 (1.8)
Imo	147 (8.9)	13 (11.3)	23 (9.9)	37 (15.2)	24 (10.4)	26 (11.4)	4 (1.9)	22 (10)	136 (9.9)
Kaduna	49 (2.9)	3 (2.6)	6 (2.6)	6 (2.5)	6 (2.6)	6 (2.6)	6 (2.8)	6 (2.7)	36 (2.6)
Kano	29 (1.7)	2 (1.7)	4 (1.7)	4 (1.6)	4 (1.7)	4 (1.8)	4 (1.9)	4 (1.8)	24 (1.8)
Kwara	79 (4.7)	6 (5.6)	13 (5.6)	12 (4.9)	12 (5.2)	12 (5.3)	12 (5.6)	11 (5.0)	72 (5.3)

[a]Numbers in parentheses are expressed as percentages.

Table 1. Continued

State	Total school communities	Sample	Respondent groups						
			Students	Parents	Teachers	Principals and headmasters	Government staff	Farmers/ business	Total
Lagos	56 (3.4)	3 (3.4)	8 (3.4)	8 (3.3)	8 (3.5)	8 (3.5)	8 (3.8)	8 (3.6)	48 (3.5)
Niger	16 (1)	1 (0.9)	2 (0.9)	2 (0.8)	2 (0.9)	2 (0.9)	2 (0.9)	2 (0.9)	12 (0.9)
Ogun	80 (4.8)	6 (5.2)	9 (3.9)	12 (4.9)	11 (4.8)	12 (5.2)	12 (5.6)	11 (5.0)	67 (4.9)
Ondo	148 (8.9)	10 (8.8)	20 (8.6)	20 (8.2)	19 (8.2)	21 (9.2)	20 (9.4)	20 (9.1)	120 (8.8)
Oyo	218 (13.1)	14 (12.3)	30 (12.9)	30 (12.3)	30 (13.0)	30 (13.2)	30 (14.1)	30 (13.6)	180 (13.2)
Plateau	49 (2.9)	4 (3.5)	5 (2.2)	6 (2.6)	6 (2.6)	6 (2.6)	6 (2.8)	7 (3.2)	36 (2.6)
Rivers	89 (5.3)	6 (5.2)	12 (5.2)	12 (5.2)	12 (5.2)	12 (5.7)	11 (5.2)	12 (5.5)	72 (5.3)
Sokoto	21 (1.3)	1 (0.8)	3 (1.3)	2 (0.8)	1 (0.4)	2 (0.9)	2 (0.9)	2 (0.9)	12 (0.9)
Total	1667 (100)	115 (100)	232 (100)	244 (100)	231 (100)	228 (100)	213 (100)	220 (100)	1368[b] (100)

[b]Missing data were observed for 12 respondents.

their fifth year were generally excluded from the study because the researcher felt that these students would be busy preparing for their West African Examinations at the time of year that the study was conducted. Students who took part in the study (a total of 238) were chosen randomly by the student teacher and the agricultural science teacher.

Parents

One parent of each selected student was chosen to take part in the study. Most parents who took part lived in the school community area.

Policy makers

The policy makers interviewed were the educational officials employed by the state ministries or education boards located in the divisional headquarters or in some cases local government offices.

Farmers and agribusiness people

The farmers and agribusiness people were identified with the help of the local agricultural science teacher.

The investigator made trips to selected school communities to monitor the progress of data collection. After the first four weeks, non-respondents were replaced with substitute participants. Responses were completed after about seven weeks. Agricultural science teachers and student teachers checked the questionnaires for completeness. On the whole, student teachers were very cooperative and followed agreed-upon procedures.

Coding of Data

A system of coding the responses of the study participants was developed. All the data were transferred to 80-column sheets for key punching. If a respondent failed to respond to a principle item, the midpoint of the scale (50) was entered on the code sheet. If demographic data were omitted, a 99 was entered. The failure of a respondent to complete many items in the questionnaire resulted in a rejection of the questionnaire. The Iowa State University computation center personnel key punched and verified the data.

Analysis of Data

The analysis of data was as follows:

1. A frequency program was run to check completeness of the data.
2. Means and standard deviations for each group, for the total sample on each demographic variable and for each principle statement, were obtained through the use of an S.P.S.S.X. program.
3. A one-way analysis of variance was computted for each variable to detect differences among group means.
4. A factor-analysis was run, without restriction, on number of factors to be generated. Next, the number of factors was restricted to ten factors and reliability tests were run.
5. A compute sub-command was used to determine a composite score for each of the broad philosophical areas by respondent groups.
6. A one-way analysis of variance and post-hoc test was made to detect if group scores differed and which group scores were different for each of the eight broad philosophical areas.

FINDINGS

The Findings chapter is presented in four sections: (1) description of groups included in the sample, (2) factor analysis of the sub-principle statements, (3) perceived level of importance of the sub-principle statements, and (4) major findings.

Description of Groups

Five demographic variables were selected to describe the groups studied. The variables were age of respondents, years of formal education, educational plans of students, secondary school agricultural education enrollment, and type of school agricultural program in the community.

Data in Table 2 reveal the age of respondents. Among the 480 respondents who were under 30 years of age, 47 percent were students. The number of teachers who were less than 30 years of age comprised the second largest group. The number of parents who were less than 30 years of age were least in number among the groups studied. It was observed that farmers and agribusinessmen constituted the largest group of respondents who were above 50 years of age. Parents made up the second largest group of people above 50 years of age.

Groups included in the study were compared on the basis of years of formal education completed in Table 3. It was noted that government officials had more years of formal education than did any other group in the study. Farmers, as a group, had the highest number of respondents who had completed six or less years of formal education.

Table 2. Respondent group by age of respondent

Group	Years				
	Under 30	31-40	41-50	Above 50	Total
Students	227 (47.3)[a]				227 (16.7)
Parents	13 (2.7)	19 (7.7)	151 (33.0)	59 (34.3)	242 (17.8)
Teachers	164 (34.2)	42 (17.0)	22 (4.8)	3 (1.7)	231 (17.0)
Principals/ headmasters	21 (4.3)	37 (15.0)	155 (33.9)	15 (8.7)	228 (16.2)
Government officials	34 (7.1)	105 (42.3)	62 (13.6)	10 (5.9)	211 (15.6)
Farmers/agri-businessmen	21 (4.3)	45 (18.5)	67 (14.7)	85 (39.3)	218 (16.1)
Total	480 (100.0)	248 (100.0)	457 (100.0)	172 (100.0)	1357[b] (100.0)
Percent of total	(35.4)	(18.3)	(33.7)	(12.6)	

[a]Numbers expressed in parentheses are percentages.
[b]Missing data were observed for 23 respondents.

Table 3. Respondent group by years of formal education

Group	Years					
	6 years or less	7 to 9	10 to 12	13 to 15	16 to 18	Total
Students	33 (14.9)[a]	94 (43.3)	95 (42.8)			222 (16.5)
Parents	27 (11.3)	30 (12.6)	107 (45.0)	39 (16.4)	35 (14.7)	238 (17.7)
Teachers		7 (3.1)	94 (41.6)	101 (44.7)	24 (10.6)	226 (16.8)
Principals/ headmasters		2 (0.8)		147 (64.5)	79 (34.7)	228 (16.9)
Government officials		3 (1.4)	4 (1.8)	79 (37.1)	127 (59.6)	213 (15.8)
Farmers and agribusinessmen	102 (46.4)	86 (39.1)	31 (14.1)	1 (0.5)		220 (16.3)
Total	162 (100.0)	222 (100.0)	331 (100.0)	367 (100.0)	265 (100.0)	1347[b] (100.0)
Percent of total	(12.0)	(16.5)	(24.6)	(27.3)	(19.6)	

[a]Numbers expressed in parentheses are percentages.
[b]Missing data were observed for 33 respondents.

Data in Table 4 revealed that the percentage of respondents who felt that students enrolled in agricultural education should continue in agriculture-related jobs was higher than the percentage of respondents who felt that students enrolled in agricultural education should not necessarily continue in an agriculture-related profession. It was observed that the largest percentage of respondents did not know whether students enrolled in agricultural education should continue in agriculturally-related professions.

The overall mean enrollment in the secondary schools included in the sample was 633.8 students. Data in Table 5 revealed that most schools studied had school enrollments between 600 and 840 students.

Most respondents were residing in school community areas that had enrollments between 121 to 180 students in their school agriculture programs. This observation is based on data presented in Table 6. The least number of respondents were residing in school communities that had enrollments of more than 301 students in their agriculture programs.

Factor Analysis of Sub-Principle Statements

The 90 sub-principle items were factor analyzed to provide insights into the logical grouping of sub-principle statements. Two factor analyses were conducted on the sub-principles. The first analysis was conducted using unlimited possible factors. The results of this analysis provided 27 different factors. Because of the difficulty of interpreting the results of this analysis, it was decided to analyze the sub-principles limiting the possible factors to ten. The results

Table 4. Respondent group by felt need for students to continue in an agricultural profession

Group	Intention			
	Yes	No	Do not know	Total
Students	76 (32.8)[a]	71 (30.6)	85 (36.6)	232 (17.0)
Parents	70 (28.7)	79 (32.4)	95 (38.9)	244 (17.8)
Teachers	78 (33.8)	65 (28.1)	88 (38.1)	231 (16.0)
Principals	78 (34.2)	70 (30.7)	80 (35.1)	228 (16.7)
Government officials	67 (31.5)	65 (30.5)	81 (38.0)	213 (15.6)
Farmers and agribusinessmen	70 (31.8)	67 (30.5)	83 (37.7)	220 (16.1)
Total	439 (100.0)	417 (100.0)	512 (100.0)	1368[b] (100.0)
Percent of total	(32.1)	(30.5)	(37.4)	

[a]Numbers expressed in parentheses are percentages.
[b]Missing data were observed for 12 respondents.

Table 5. Secondary school enrollment frequencies and percentages

Student enrollment	Number	Percentage
0 to 120	6	5.2
121 to 240	8	7.0
241 to 360	9	7.8
361 to 480	14	12.2
481 to 600	15	13.0
601 to 720	19	16.5
721 to 840	18	15.7
841 to 960	6	5.2
961 and above	16	13.9
No response	4	3.5
Total	115	100.0

Mean enrollment = 633.8

Table 6. Agricultural enrollment by number of respondents and number of school communities

Student enrollment	Number of respondents	Number of school communities
1 to 60	294 (22.0)[a]	25 (21.7)
61 to 120	229 (17.2)	21 (18.2)
121 to 180	425 (31.8)	35 (30.4)
181 to 240	180 (13.5)	15 (13.04)
241 to 300	108 (8.1)	10 (8.6)
301 and above	99 (7.4)	9 (7.8)
Total	1335[b] (100.0)	115 (100.0)

Mean agricultural enrollment = 148.0

[a]Numbers expressed in parentheses are percentages.
[b]Missing data were observed for 45 respondents.

of this test are summarized in Tables 19 through 28 located in Appendix B.

It was observed that Factor One contained 12 sub-principle items with correlation values ranging from .44 to .66. Factor Two contained 14 sub-principle items with correlation values ranging from .38 to .59. The least number of sub-principle items were observed clustering around Factors Eight and Nine. For each of these factors, there were only five sub-principle statements with correlation values ranging from .40 to .76.

Data in Table 7 present the reliability coefficients for the items that made up each of the ten factors. It was observed that the ten coefficients ranged in value from .3 to .86. The highest coefficient (.86) was observed for Factor One, whereas the lowest coefficient (.30) was observed for Factor Ten. Seven out of the ten factors had reliability coefficients above .70.

Perceived Level of Importance of Sub-Principle Statements

Sub-principle group means, standard deviations, mean rankings within respondent groups, F values, and F probabilities were used to summarize the importance expressed by the respondents for the sub-principles clustering around each of the ten factors. Analysis of variance tests applied to the group mean scores for each of the 90 sub-principles revealed no significant F values. In all cases, the group means were determined to be similar. In addition, standard deviations of means were smaller for sub-principle items that had high importance ratings

Table 7. Reliability of principle statements within the ten factors

Area	N	Number of items	Standardized alpha
Factor One	1380	12	.84
Factor Two	1380	14	.86
Factor Three	1380	11	.80
Factor Four	1380	9	.80
Factor Five	1380	9	.76
Factor Six	1380	9	.77
Factor Seven	1380	10	.77
Factor Eight	1380	5	.76
Factor Nine	1380	5	.67
Factor Ten	1380	6	.30

and larger for sub-principles with lower importance ratings.

The sub-principle group means, standard deviations, mean ranks, F values and F probabilities for Factor One are presented in Table 8. It was observed that the sub-principle, "to emphasize the students' awareness of new developments in agriculture," had the highest total mean score (68.3) among the twelve items that clustered around Factor One. Comparisons among the twelve sub-principle means within each group revealed that this sub-principle was ranked first for all groups except the parent group. For this group, "emphasizing the students' awareness of new developments in agriculture" ranked third and "emphasizing meeting individual needs" ranked first. The sub-principle, "consider students' personal interests, needs, desires, and ambitions when determining curriculum activities," had the lowest overall mean score (61.7) and group mean scores that ranked twelfth by all groups.

Eleven of the twelve sub-principles had overall and individual

Table 8. Sub-principle group means, standard deviations, mean ranks, F-values, and F-probabilities for Factor One

Sub-principle		Group[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
	N	232	236	231	228	225	220	1380		
Consider students' personal interests, needs, desires, and ambitions, when determining curriculum activities	M[b]	63.2	61.9	60.5	62.0	61.0	63.4	61.7		
	SD[c]	27.5	27.1	28.9	30.1	28.5	25.1	26.8	.23	.91
	R[d]	12	12	12	12	12	12	12		
Involve student participation in reaching solutions to problems	M	67.8	65.9	64.8	68.5	67.0	67.5	67.3		
	SD	23.3	24.7	20.4	23.7	23.9	23.1	23.8	.38	.82
	R	3	8	7	2	3	3	4		
Emphasize the role of individual price setting on agricultural produce	M	64.3	63.0	65.3	65.0	64.7	63.5	64.5		
	SD	28.3	29.0	28.0	27.9	27.0	27.3	27.8	.16	.96
	R	10	9	9	11	10	11	11		
Emphasize meeting individual student needs	M	68.0	68.5	67.6	68.2	67.3	67.9	68.0		
	SD	23.1	24.1	22.8	22.5	22.5	23.0	23.0	.34	.85
	R	2	1	3	3	2	2	2		
Emphasize the student's awareness of new developments in agriculture	M	69.2	67.8	68.0	68.6	69.8	68.7	68.3		
	SD	21.5	22.4	22.4	21.0	23.2	22.9	22.4	.31	.90
	R	1	3	1	1	1	1	1		
Emphasize that students are responsible for their own successes and failures both at school and later in life	M	65.3	64.0	66.9	66.5	65.2	64.9	65.2		
	SD	25.1	25.2	24.9	25.4	25.1	24.9	24.3	.27	.80
	R	9	11	6	6	7	8	9		

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group mean.

[c]SD = Standard deviation.

[d]R = Rank of mean among group means.

Table 8. Continued

Sub-principles		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
Plan experiences that involve involve competition among students	M[b]	67.4	67.7	67.0	68.2	66.1	66.7	67.7		
	SD[c]	24.5	23.2	23.1	23.6	24.1	23.8	24.3	.07	.92
	R[d]	5	5	5	3	6	5	3		
Include on-the-job experience that takes place on the farm or in the agircultural business location	M	67.0	67.9	67.9	65.6	66.2	66.7	66.9		
	SD	28.0	28.2	27.9	28.4	29.8	28.0	28.6	.19	.94
	R	8	2	2	8	4	5	5		
Emphasize the influence of national politics on local decision-making in agricultural production and marketing	M	67.7	65.9	67.2	66.7	65.0	66.1	66.6		
	SD	24.8	24.9	24.2	25.3	23.0	24.0	24.8	.24	.92
	R	4	4	4	5	8	7	6		
Foster family and other interpersonal relationships	M	66.1	64.2	63.0	66.0	63.5	64.9	65.1		
	SD	25.6	26.4	25.3	26.1	24.0	26.1	25.9	.32	.82
	R	7	6	11	5	11	8	8		
Study the application of technical knowledge in processing agricultural products	M	64.9	64.2	66.0	65.5	64.8	64.3	65.1		
	SD	25.9	26.3	25.3	26.0	25.6	24.0	25.8	.12	.97
	R	10	7	8	9	9	10	10		
Teach knowledge, skills, and abilities necessary for satisfying employment in specific agricultural occupations	M	67.1	65.0	66.2	65.6	66.2	67.0	66.4		
	SD	26.6	25.6	24.6	25.1	24.0	21.0	25.9	.14	.91
	R	6	6	6	6	4	4	7		
Composite	M	66.5	65.3	66.8	66.4	66.4	66.5	66.3		
	SD	14.5	16.0	15.4	15.0	15.0	14.7	15.1	.31	.90

group mean scores that fell into the "much importance" range of scale values. Although the sub-principle group means were similar in value for all groups, the standard deviations were observed to be large.

The parent group tended to rate the importance of the sub-principles lower than did the other groups studied. The teacher group tended to rate the importance of the sub-principles higher than did the other groups studied.

Data in Table 9 present the sub-principle group means, standard deviations, mean rankings, F values and F probabilities for Factor Two. It was observed that 14 sub-principles had clustered around Factor Two. The three sub-principles that had the highest total mean score were "planning to supervise students work closely" (71.6), "emphasizing work and workmanship by each individual in contributing to the welfare of the society" (68.5), and "basing instruction on actual problems of students" (68.2). It was interesting to note, however, that when comparing sub-principle means within respondent groups, the means for "basing instruction on actual problems of students" was ranked either second or third by all groups but sixth by parents, and the mean for "emphasizing work and workmanship by each individual in contributing to the welfare of the society" ranked second or third by all groups but twelfth by government officials.

The three sub-principles that had the lowest mean scores were "including activities which allow students to become competent and active citizens" (62.3), "emphasizing the opportunity which the Nigerian political system provides for free agricultural enterprise" (62.6), and

Table 9. Sub-principle group means, standard deviations, mean ranks, F-values, and F-probabilities for Factor Two

Sub-principles		Groups[a] 1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Emphasize that students evaluate the consequences to possible solutions to problems	M[b]	63.4	62.6	64.3	64.0	65.1	63.0	63.9		
	SD[c]	24.7	24.0	25.3	24.5	23.1	22.0	24.4	.19	.91
	R[d]	13	12	9	9	8	11	10		
Emphasize experience as the medium through which knowledge is acquired and skills and abilities are acquired	M	68.2	65.9	67.8	67.4	67.2	66.0	66.3		
	SD	26.4	27.4	27.5	25.0	24.3	25.0	26.0	.23	.92
	R	5	5	5	4	5	7	6		
Emphasize the opportunity which Nigerian political system provides for free agricultural enterprise	M	63.8	62.7	62.1	61.1	63.3	62.9	62.6		
	SD	29.1	28.7	29.5	30.0	28.4	27.0	29.3	.27	.90
	R	11	11	13	13	11	13	13		
Promote responsible citizenship	M	66.1	64.0	63.0	66.0	63.5	64.9	65.1		
	SD	25.6	26.4	25.3	26.1	24.1	26.1	25.9	.32	.85
	R	7	8	11	6	10	10	8		
Plan to supervise students' work closely	M	71.8	69.8	72.2	73.5	73.6	70.1	71.6		
	SD	22.9	23.4	22.6	22.0	23.5	23.2	22.7	.52	.71
	R	1	1	1	1	1	1	1		
Base instruction upon actual problems of students	M	68.8	65.7	67.2	69.3	70.0	67.9	68.2		
	SD	23.7	26.1	24.7	23.9	24.0	25.2	24.5	1.13	.34
	R	3	6	6	2	2	3	3		

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group mean.

[c]SD = Standard deviation.

[d]R = Rank of mean among group means.

Table 9. Continued

Sub-principles		Groups[a] 1	2	3	4	5	6	Total	F-value	F-probability
Emphasize work and workmanship by each individual in contribution to the welfare of the society	M[b]	69.4	66.3	68.4	69.2	63.0	68.3	68.5		
	SD[c]	23.8	25.9	23.9	24.1	25.0	26.9	24.5	.60	.67
	R[d]	2	3	2	3	12	2	2		
Measure student performance by a set of standards	M	63.2	62.3	62.5	63.5	62.4	61.0	62.9		
	SD	25.6	25.3	26.5	25.0	26.0	25.4	25.7	.06	.99
	R	14	13	12	11	13	14	12		
Make continuous use of the human physical resources of the community	M	68.1	68.3	68.0	67.3	68.2	66.4	67.9		
	SD	23.1	23.6	23.0	23.3	21.7	22.1	22.0	.00	.98
	R	6	2	4	5	4	5	5		
Emphasize the development of the student as a whole person	M	68.5	66.0	68.3	64.0	69.0	67.9	68.1		
	SD	24.1	25.0	23.0	23.9	24.0	24.5	24.1	.66	.61
	R	4	4	3	10	3	3	4		
Develop an appreciation and understanding of the interrelationships of agriculture and national and local problems	M	64.6	63.0	63.8	64.1	64.1	63.0	64.4		
	SD	27.2	28.0	27.8	27.0	27.4	28.3	27.5	.05	.99
	R	9	10	10	9	9	11	9		
Include activities which allow students to become competent and active citizens	M	63.9	60.7	61.3	62.1	61.9	62.8	62.3		
	SD	27.0	28.2	26.9	27.3	27.4	26.6	27.2	.41	.80
	R	11	14	14	12	14	14	14		
Teach students how to participate effectively in a democratic society	M	64.2	63.5	64.8	65.3	65.8	64.7	63.8		
	SD	27.7	28.1	27.8	26.7	26.8	27.3	26.8	.32	.93
	R	10	9	8	8	6	9	11		
Help students recognize and accept responsibilities	M	65.4	64.7	65.0	65.8	65.2	65.1	65.2		
	SD	24.5	25.0	23.5	24.3	24.5	24.9	24.6	.05	.99
	R	8	7	7	7	7	8	7		

Table 9. Continued

Sub-principles		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
Composite	M[b]	66.4	65.1	66.1	65.9	66.3	66.2	66.0		
	SD[c]	14.2	15.3	15.9	15.3	14.5	14.3	14.9	.23	.95

"measuring student performance by a set of standards" (62.9).

Sub-principle composite group mean for parents was observed to be lowest when compared among all groups studied. It was further observed that the group means for teachers were lower than the group means of principals for "planning to supervise students' work more closely" and "basing instruction on actual problems of students." It was interesting to note that the composite group means for government officials and students were higher than group means for any other group of people surveyed.

Attention of the research was drawn to the ratings given by the student group to the sub-principle "to measure student performance by a set of standards." Students and principals/headmasters rated the sub-principle higher than did the other groups. Government officials placed a higher degree of importance on "emphasizing the development of students as a whole person" (69.0). Students, on the other hand, placed more importance on "emphasizing experience as a medium through which knowledge and skills are acquired" than did the other groups studied.

To "teach students to contribute to food production" had the highest total mean (83.0) and the smallest standard deviation score (20.4) among the sub-principles in Factor Three. This observation is based on data presented in Table 10. "Emphasizing personal financial security" had the lowest total mean score (62.2) and a standard deviation of 27.6. It was the opinion of the investigator that this sub-principle should be considered by the respondents as being of the highest priority in Factor Three.

Table 10. Sub-principle group means, standard deviations, mean ranks, F-values and F-probabilities for Factor Three

Sub-principle		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Collect information and knowledge to aid in the problem-solving process	M[b]	70.2	67.9	68.7	68.6	69.1	68.9	68.9		
	SD[c]	23.4	24.7	22.0	24.0	23.8	24.7	24.1	.27	.89
	R[d]	6	7	6	6	7	6	7		
Emphasize personal financial security	M	62.6	61.8	64.3	63.1	61.4	62.4	62.2		
	SD	28.1	27.0	27.3	28.1	27.9	26.4	27.6	.19	.94
	R	10	10	11	10	11	10	11		
Include the application of technical information in marketing agricultural products	M	68.6	68.4	69.6	68.4	70.1	67.0	69.0		
	SD	27.1	26.7	25.5	27.1	28.1	27.5	26.7	.18	.95
	R	7	6	5	7	6	7	6		
Teach students to evaluate their achievements in terms of their own values	M	66.8	65.5	67.2	66.0	65.7	66.2	66.3		
	SD	28.2	28.0	27.1	28.4	30.2	28.9	28.0	.12	.98
	R	9	9	8	9	9	9	9		
Emphasize honesty and respect	M	71.1	68.8	68.0	72.7	71.5	70.7	70.9		
	SD	22.0	24.1	20.4	21.4	21.7	21.2	22.2	.97	.42
	R	5	4	7	2	5	4	4		
Include a study of the conservation methods of our natural resources	M	72.7	69.9	72.3	71.9	72.2	72.0	71.8		
	SD	22.5	24.3	22.6	23.8	23.0	24.0	23.2	.49	.74
	R	3	2	2	3	2	2	3		

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group mean.

[c]SD = Standard deviations.

[d]R = Rank of mean among group means.

Table 10. Continued

Sub-principle		Groups[a] 1	2	3	4	5	6	Total	F-value	F-probability
Use problem solving as a method of learning	M[b]	73.4	69.0	71.9	71.5	72.0	71.9	72.0		
	SD[c]	24.3	24.5	23.7	23.4	23.6	23.1	23.9	.62	.65
	R[d]	2	3	3	4	3	3	2		
Assign responsibilities which students can perform to develop self-confidence	M	67.2	67.0	66.5	68.0	67.6	66.9	67.3		
	SD	24.0	24.7	24.0	23.7	24.2	24.1	24.1	.11	.98
	R	8	8	9	8	8	8	8		
Emphasize the conservation and use of human resources to sustain enterprise efficiency and human well-being	M	71.2	68.6	71.1	71.4	71.9	70.1	70.1		
	SD	22.9	24.2	22.9	22.9	23.4	23.5	23.8	.63	.64
	R	4	5	4	5	4	5	5		
Teach students to contribute to food production	M	83.3	81.8	82.9	82.7	83.2	83.9	83.0		
	SD	19.8	22.2	20.4	20.0	19.0	20.3	20.4		
	R	1	1	1	1	1	1	1		
Emphasize the development of personal and business relationships	M	61.3	60.3	61.4	61.5	62.0	60.2	60.9		
	SD	27.6	28.0	27.9	26.1	28.1	28.2	28.4	.11	.98
	R	11	11	10	11	10	11	10		
Composite	M	69.7	68.2	69.5	69.6	69.6	69.5	69.3		
	SD	13.9	14.9	14.4	13.7	13.9	14.4	14.2	.37	.87

Principals, as a group, gave high importance ratings to sub-principles that dealt with financial security and business relationships. There were only marginal differences between students and parent group means for "emphasizing personal financial security" and "emphasizing the development of business relationships." Parent and student group mean scores for these sub-principles were low.

Parents and teachers rated the importance of "emphasizing honesty and respect" lower than did the other groups studied. "Collecting information and knowledge to aid in the problem-solving process" and "using problem-solving as a method of learning" were two sub-principles which parents, as a group, attached the least degree of importance. It was further observed that Factor Three contained the sub-principle ("teach students to contribute to food production") that had the highest total mean score (83.0) when compared with the means for the other 89 sub-principles studied.

It was observed in Table 11 that nine sub-principles had clustered around Factor Four. "Preparing students for leadership roles in agriculture and society" had the highest total mean score (69.8), although this sub-principle was several scale points lower than the highest sub-principle mean scores in Factors Two and Three.

Students and government officials appeared to have scored the importance of the sub-principle, "to develop an evaluation system other than the examination conducted by the West African Examination Council," higher than did any of the other groups studied.

The low total mean score was observed for "emphasizing that skills

Table 11. Sub-principle group means, standard deviations, mean ranks, F-values, and F-probabilities for Factor Four

Sub-principle		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Emphasize that skills can be learned only through personal experience	M[b]	56.1	54.6	57.2	55.3	56.8	57.0	56.0		
	SD[c]	30.7	30.0	29.8	31.8	30.8	30.2	30.6	.28	.89
	R[d]	9	9	9	9	9	9	9		
Utilize individualized instruction in solving student problems	M	67.1	63.4	64.3	64.6	66.0	63.2	64.3		
	SD	26.8	26.4	26.8	26.0	25.8	26.1	26.4	.37	.83
	R	6	8	6	8	7	7	7		
Develop in students an awareness of agriculture's responsibility to society	M	69.0	69.2	69.3	68.8	68.3	69.2	69.0		
	SD	24.0	24.3	24.3	24.0	25.0	24.5	23.9	.02	.99
	R	4	1	2	2	6	1	2		
Evolve an evaluation system other than examination conducted by West African Examination Council	M	69.3	67.8	68.0	68.6	69.8	67.2	68.7		
	SD	21.5	22.9	23.0	22.0	21.0	23.2	24.1	.31	.87
	R	2	4	3	3	2	3	3		
Develop creative thinking skills	M	65.6	63.9	65.3	65.9	66.8	65.0	64.4		
	SD	24.7	24.0	25.3	24.5	23.1	24.1	25.3	.41	.80
	R	3	7	5	6	5	6	6		
Emphasize problem solving	M	65.2	64.3	66.4	66.8	67.3	66.0	65.9		
	SD	27.3	26.4	26.6	26.7	26.8	27.6	26.9	.45	.77
	R	8	5	4	5	4	5	4		

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group means.

[c]SD = Standard deviations.

[d]R = Rank of mean among group means.

Table 11. Continued

Sub-principles		Groups[a] 1	2	3	4	5	6	Total	F-value	F-probability
Prepare students for leadership roles in agriculture and society	M[b]	70.2	69.1	70.3	69.4	69.7	69.0	69.8		
	SD[c]	23.7	24.8	23.3	25.0	23.0	22.3	23.6	.08	.99
	R	1	2	1	1	1	1	1		
Base instruction upon community needs	M	65.4	63.8	64.0	65.0	63.0	66.0	63.9		
	SD	24.0	24.5	23.5	21.8	22.0	24.5	23.8	.34	.86
	R	7	6	7	7	8	2	8		
Include modes of education that are informal (newspaper, television, etc.)	M	67.3	68.3	66.0	67.4	67.6	66.8	67.1		
	SD	24.6	24.4	28.0	24.0	24.3	24.0	26.7	.14	.96
	R	5	3	8	4	3	4	5		
Composite	M	65.3	64.4	65.1	65.3	65.2	65.9	65.2		
	SD	15.7	16.2	16.7	15.8	15.8	16.0	16.0	.22	.95

can be learned only through personal experience." This finding appears to be similar to the importance ratings observed for "planning to supervise students more closely" in Factor Two.

It was interesting to note that five of the nine sub-principles in this factor related directly or indirectly to problem-solving. One wonders why the sub-principle related to the West African Examination Council clustered with this factor.

"Providing all students equal program opportunities" had the highest total mean score (75.3) among the nine-sub-principles that clustered in Factor Five. This observation is based on data provided in Table 12. Among the sub-principles included in this study, this principle had the second highest overall mean score. It was observed that parents and government officials had lower group means for this sub-principle than did the other groups in the study.

"Assisting students in continual evaluation of progress toward personal goals" had the lowest total mean rating in Factor Five. It was observed that similar sub-principles "to emphasize that students evaluate the consequences of possible solutions to problems," "to measure student performance by a set of standards" in Factor Two (see Table 19), and "to teach students to evaluate their achievements in terms of their own values" in Factor Three (see Table 20) had very low total mean scores.

It was interesting to note that "providing educational opportunities for adults preparing for entering agricultural occupations" had the second highest mean score for the parent and teacher groups, the third

Table 12. Sub-principle groups means, standard deviations, mean ranks, F-values and F-probabilities for Factor Five

Sub-principles		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Emphasize the management of appropriate machinery and equipment	M[b]	67.5	65.9	67.2	66.7	65.6	67.0	66.6		
	SD[c]	24.8	24.9	24.3	23.3	25.4	24.0	24.8	.24	.92
	R[d]	6	6	7	7	6	6	7		
Apply the knowledge in attaining agricultural management skills	M	70.0	69.0	70.5	69.3	69.2	69.0	69.8		
	SD	23.5	23.8	24.1	24.0	24.2	23.1	23.7	.16	.96
	R	5	5	5	5	4	4	5		
Provide all students equal program opportunities	M	75.1	74.5	75.8	74.9	70.5	73.9	75.3		
	SD	28.1	27.4	26.4	27.7	26.5	26.0	27.2	.18	.94
	R	1	1	1	1	3	1	1		
Assist students in continual evaluation of progress toward personal goals	M	63.9	63.8	64.9	63.2	62.7	63.0	63.8		
	SD	30.6	29.6	30.0	30.2	31.0	29.0	30.5	.17	.95
	R	9	9	8	9	9	9	9		
Emphasize community input in the development of agricultural education	M	74.0	73.2	72.3	73.8	72.0	73.0	73.3		
	SD	23.3	24.0	24.5	25.0	24.0	22.9	24.7	.19	.94
	R	2	3	3	2	2	2	2		
Develop an awareness of agriculture's place in society	M	71.3	69.5	72.2	69.9	71.0	69.0	70.8		
	SD	26.4	25.3	25.6	26.4	25.0	24.0	26.0	.41	.82
	R	4	4	4	4	3	4	4		

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group means.

[c]SD = Standard deviations.

[d]R = Rank of mean among group means.

Table 12. Continued

Sub-principle		Groups[a] 1	2	3	4	5	6	Total	F-value	F-probability
Continually evaluate educational activities in order to bring about program improvement	M[b]	65.7	64.3	65.4	64.7	64.4	64.0	64.8		
	SD	27.1	27.3	27.0	28.5	27.6	26.3	27.5	.12	.97
	R	8	8	7	8	8	7	8		
Emphasize the value of work	M	67.4	65.8	67.3	66.9	66.1	63.8	66.9		
	SD	24.9	25.8	23.9	24.9	23.0	24.0	25.3	.20	.93
	R	7	7	6	6	5	8	6		
Provide educational opportunities for adults preparing for or entering in agricultural occupations	M	73.9	73.8	73.4	72.4	72.3	72.7	73.2		
	SD	22.2	22.1	22.4	23.6	22.7	23.1	23.6	.27	.89
	R	3	2	2	3	1	3	3		
Composite	M	69.9	69.3	70.1	70.1	69.0	69.2	69.6		
	SD	14.6	15.2	15.0	14.6	15.8	15.8	15.1	.24	.94

highest mean score for the student, principal, farmer and agribusiness groups, and first by the government official group.

It was observed that to "emphasize the contribution that agriculture makes to meeting consumer needs" had the highest total mean score (74.0) in Factor Six. Similarly, the sub-principle, "to teach students to contribute to food production" in Factor Three had the highest total mean score (83.4). These observations are based on data presented in Table 13. The sub-principle with the second highest group mean was "providing an opportunity for students to perform definite practices as a result of instruction."

The lowest total mean score (62.8) was observed for "including educational opportunities for handicapped." The group means for students and government officials were generally higher than the group means of the other groups for the nine sub-principles that clustered around this factor.

A review of the nature of the nine sub-principles included under this factor revealed that five sub-principles related to students and two related to agricultural management.

Data in Table 14 reveal the means, standard deviations, mean rankings, F-values, and F-probabilities for Factor Seven. It was observed that "emphasizing group participation in agriculture through use of existing institutions" had the highest total mean score (68.3), whereas "to include a variety of course offerings" had the second lowest total mean score (61.5). All sub-principles clustered around this factor had group means that exceeded 62.5 (much importance) with the exception of

Table 13. Sub-principle group means, standard deviations, mean rank, F-values, and F-probabilities for Factor Six

Sub-principles		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Study governmental actions which affect agricultural management decisions	M[b]	64.5	64.1	65.5	66.4	65.6	65.2	65.8		
	SD[c]	24.4	25.1	23.3	24.6	23.6	22.9	24.6	.48	.75
	R[d]	6	6	5	4	6	6	6		
Provide an opportunity for students to perform definite practices as a result of instruction	M	72.7	70.8	71.4	72.3	73.2	71.4	72.0		
	SD	21.8	23.1	22.3	22.1	21.2	22.5	22.4	.42	.79
	R	2	2	2	2	2	2	2		
Study the past, present, and future trends in Nigerian agriculture	M	64.4	63.6	64.8	65.6	64.5	63.8	64.5		
	SD	26.2	28.4	25.8	26.3	27.8	25.9	26.7	.15	.96
	R	7	7	7	6	8	7	7		
Assist students in realizing that goals cannot be achieved without developing strategies for achievement	M	63.4	62.6	64.3	64.0	65.1	63.0	63.9		
	SD	24.7	24.0	25.3	24.5	23.1	22.0	24.4	.19	.91
	R	8	8	8	7	7	8	8		
Emphasize setting and attaining goals	M	68.9	67.6	68.0	63.3	68.5	68.1	68.6		
	SD	23.6	24.0	25.8	22.9	24.8	24.5	24.1	.12	.93
	R	4	3	4	9	4	4	4		
Assist students in assessing and coping with their personal strengths and weaknesses	M	69.3	66.7	69.6	68.4	69.5	68.2	68.7		
	SD	27.9	28.5	27.6	28.3	27.6	28.0	28.0	.40	.80
	R	3	4	3	3	3	3	3		

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group means.

[c]SD = Standard deviations.

[d]R = Rank of mean among group means.

Table 13. Continued

Sub-principles		Groups[a] 1	2	3	4	5	6	Total	F-value	F-probability
Include educational opportunities to the handicapped	M[b]	63.0	62.0	63.5	64.0	61.0	60.1	62.8		
	SD[c]	27.0	26.9	25.5	26.0	26.7	25.0	26.8	.11	.97
	R[d]	9	9	9	7	9	9	9		
Emphasize the contribution that agriculture makes to the meeting of consumer needs	M	74.9	75.4	75.0	73.7	74.1	72.0	74.0		
	SD	21.9	20.0	21.6	26.2	21.0	22.2	21.9	.12	.90
	R	1	1	1	1	1	1	1		
Emphasize activities that involve student decision making	M	67.2	66.2	65.4	66.1	67.3	67.0	66.4		
	SD	27.6	28.1	27.9	28.9	27.6	28.0	27.8	.20	.93
	R	5	5	6	5	5	5	5		
Composite	M	69.9	67.6	68.5	68.1	68.3	68.6	68.3		
	SD	14.3	15.2	14.8	14.9	14.4	14.5	14.7	.22	.95

Table 14. Sub-principle group means, standard deviations, mean rank, F-values, and F-probabilities for Factor number Seven

Sub-principle		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Emphasize formulating and testing hypothesis in the problem solving process	M[b]	65.2	64.8	64.0	65.8	64.4	63.1	64.8		
	SD[c]	25.3	24.4	25.4	24.9	25.4	24.8	25.2	.17	.95
	R[d]	8	4	6	4	5	7	6		
Foster patriotism	M	67.2	64.7	66.5	67.1	65.9	65.4	66.4		
	SD	26.4	27.8	26.3	26.1	27.1	25.6	26.8	.40	.80
	R	3	5	2	3	3	3	3		
Emphasize problem-solving which involves predominantly activity of students	M	63.5	62.8	63.0	65.1	65.7	62.0	63.6		
	SD	26.7	27.4	26.3	25.3	26.5	27.0	26.8	.24	.91
	R	6	7	8	5	4	8	7		
Emphasize problem-solving which involves both physical and mental activity of problems	M	61.4	59.7	59.6	60.4	59.5	60.1	60.2		
	SD	26.0	26.3	26.4	25.6	26.7	26.1	25.0	.24	.90
	R	9	9	10	9	10	10	10		
Emphasize group participation in agriculture through use of existing institutions	M	69.5	66.3	68.4	69.2	68.3	68.0	68.3		
	SD	23.8	25.9	23.9	24.1	24.8	24.0	24.6	.60	.67
	R	1	1	1	1	2	2	1		
Develop the knowledge and skills necessary for self-fulfillment of students	M	65.6	64.0	65.4	64.7	63.9	64.1	65.1		
	SD	26.4	26.5	24.9	27.4	26.9	26.6	26.4	.22	.92
	R	4	6	4	5	6	5	4		

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group means.

[c]SD = Standard deviations.

[d]R = Rank of mean among group means.

Table 14. Continued

Sub-principle		Groups[a] 1	2	3	4	5	6	Total	F-value	F-probability
Teach students to accept present situation and identify changes needed to achieve their goals	M[b]	64.8	65.6	64.5	64.6	63.6	63.9	64.8		
	SD[c]	28.7	27.9	28.6	28.2	28.6	28.1	28.4	.04	.96
	R[d]	5	2	5	7	7	4	5		
Emphasize the accumulation of knowledge and experience for use in decision making	M	64.5	62.5	63.8	63.4	63.6	63.5	63.7		
	SD	25.5	23.8	24.2	23.7	23.0	23.9	23.4	.26	.90
	R	6	8	6	8	8	6	8		
Include a variety of course offerings	M	61.9	60.3	61.0	61.4	62.3	63.0	61.5		
	SD	28.1	27.3	27.0	28.5	27.8	27.1	27.9	.15	.96
	R	10	10	9	9	9	9	9		
Study the influence of natural elements (weather, disease, soil, etc.) in selecting agricultural enterprises	M	67.3	65.4	66.4	67.2	69.1	68.4	67.0		
	SD	22.5	24.5	21.8	22.0	20.1	22.1	22.6	.50	.73
	R	2	3	3	2	1	1	2		
Composite	M	65.1	63.9	65.0	64.3	65.1	64.5	64.6		
	SD	14.1	15.1	15.2	15.1	14.0	13.6	14.5	.27	.92

two sub-principles.

There was a tendency for teachers and principals in the study to rate the sub-principles in Factor Seven low. Standard deviations were lower for sub-principles that had high means than for sub-principles that had low group mean scores.

Of the ten sub-principles clustered around this factor, four sub-principles related to problem solving, three sub-principles were related to democratic processes, and the remainder related to student growth and development.

In Factor Eight (Table 15), one sub-principle clearly stood out as having the highest total group mean. "Determining individual needs and interests" had a total group mean score of 71.5. This sub-principle had the highest mean when compared with the other sub-principle means within each of the six groups studied. "Developing leadership in individuals" had the second highest total mean score (67.0) and sub-principle mean score within each of the respondent groups.

Parents and government officials tended to assign lowest importance values to the five sub-principles included in this factor.

It was interesting to note that students as a group did not place as much importance on "helping students to identify career opportunities in farm and off-farm agricultural occupations" as one might expect. The total mean score for this sub-principle was just above 62.5--the lower confidence level for the "much importance" scale range.

Five sub-principles clustered in Factor Nine. It was clear from the data presented in Table 16 that "defining the role of agriculture

Table 15. Sub-principle group means, standard deviations, mean rank, F-values and F-probabilities for Factor Eight

Sub-principle		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Utilize group instruction to solve problems common to specific groups of students	M[b]	63.7	64.5	62.1	63.6	64.7	62.0	63.0		
	SD[c]	26.9	25.6	27.1	26.8	26.9	26.2	26.6	.26	.90
	R[d]	3	4	5	4	4	4	5		
Emphasize the part natural resources and agriculture contribute to the use of leisure time	M	62.8	63.4	62.4	64.4	63.3	63.9	63.2		
	SD	29.8	29.1	28.1	30.1	27.9	30.4	29.6	.04	.98
	R	5	5	4	3	5	3	4		
Determine individual needs and interests	M	72.1	70.8	72.0	70.3	71.7	70.5	71.5		
	SD	23.7	22.6	23.7	25.0	23.3	23.2	22.5	.32	.85
	R	1	1	1	1	1	1	1		
Help students identify career opportunities in farm and off-farm agricultural occupations	M	63.5	64.6	63.7	62.9	65.5	61.0	63.4		
	SD	23.9	23.9	24.1	24.3	23.5	23.0	23.9	.13	.90
	R	4	3	3	5	3	5	3		
Develop leadership in individuals	M	67.3	65.4	66.4	67.2	69.7	68.4	67.0		
	SD	22.5	24.5	21.8	22.0	20.1	22.1	22.6	.50	.73
	R	2	2	2	2	2	2	2		
Composite	M	65.0	64.7	65.3	64.6	64.8	65.3	65.0		
	SD	18.9	17.9	19.2	19.0	18.7	19.2	18.8	.05	.90

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.
[b]M = Group means.
[c]SD = Standard deviations.
[d]R = Rank of mean among group means.

Table 16. Sub-principle group means, standard deviations, mean rank, F-values, and F-probabilities for Factor Nine

Sub-principle		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Define the role of agriculture in the state and national economy	M[b]	72.1	70.8	72.4	70.3	71.7	70.0	71.6		
	SD[c]	23.7	22.7	23.8	25.0	23.3	23.0	23.6	.32	.86
	R[d]	1	1	1	1	1	1	1		
Include understanding of management in the conduct of agricultural enterprises	M	63.8	62.3	62.1	61.1	63.3	62.9	62.6		
	SD	29.1	28.8	29.5	30.0	28.4	27.0	29.3	.27	.90
	R	4	5	5	5	4	5	5		
Base instruction on simulated problems	M	65.5	63.8	64.2	66.1	66.9	64.9	65.5		
	SD	28.8	29.2	28.2	29.0	28.8	28.0	28.8	.36	.83
	R	3	3	4	3	3	3	3		
Emphasize real-life situations and experiences	M	63.0	62.6	64.5	62.9	62.4	63.6	63.0		
	SD	26.9	26.8	27.1	27.0	26.0	27.1	26.8	.21	.93
	R	5	4	3	4	5	4	4		
Emphasize the importance of knowledge in setting and achieving goals	M	70.6	69.0	71.6	70.3	70.0	70.5	70.3		
	SD	23.6	23.9	23.2	23.9	23.4	22.4	22.4	.33	.85
	R	2	2	2	2	2	2	2		
Composite	M	67.0	66.0	66.8	67.1	66.2	66.9	66.7		
	SD	17.1	17.2	17.1	17.8	17.0	17.8	17.3	.18	.97

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group means.

[c]SD = Standard deviations.

[d]R = Rank of mean among group means.

in the state and national economy" was the most important sub-principle under this factor. It had an overall mean score of 71.6. "Emphasizing the importance of knowledge in setting and achieving goals" had an overall mean score of 70.3. It was observed that nine mean points existed between the high and low sub-principle total mean scores.

Teachers, as a group, had the lowest group mean score for "emphasizing real-life situations and experiences." Teachers also placed low importance on "basing instruction on simulated problems."

Sub-principle means, standard deviations, mean rankings, F-values and F-probabilities for Factor Ten are presented in Table 17. "Stressing that agriculture is more than farming" had the highest total group mean (73.1). "Providing students the opportunity to earn money through occupational experience programs" had the second highest total mean score of 70.3. "Teaching students to evaluate others' ideas and practices" had a total group mean score of 53.6, far below 62.5 (much importance level). Group reactions to this sub-principle are similar to group reactions toward evaluation sub-principles in Factor Two (Table 8) and Factor Three (Table 9).

In the main, parents tended to rate the sub-principles clustered around this factor lower than did the other groups.

Data presented in Table 18 reveal the means of the 31 most important sub-principles included in the study. The 30 most important sub-principles had a mean range from 68.5 to 83.0. It was observed that five of the six sub-principles clustered in Factor Ten and five of the nine sub-principles clustered in Factor Five were among the 30

Table 17. Sub-principle group means, standard deviations, mean rank, F-values and F-probabilities for Factor Ten

Sub-principle		Groups[a] 1	2	3	4	5	6	Total	F-value	F-probability
	N=	232	244	231	228	225	220	1380		
Stress that agriculture is more than farming	M[b]	73.5	71.5	74.5	73.1	72.9	73.3	73.1		
	SD[c]	24.5	23.3	24.5	23.7	22.4	23.7	24.0	.47	.75
	R[d]	1	1	1	1	1	1	1		
Provide students the opportunity to earn money through occupational experience programs	M	72.0	68.4	70.0	70.8	71.8	70.5	70.3		
	SD	25.9	26.8	25.1	26.1	25.9	26.0	25.9	.67	.61
	R	2	3	3	2	3	2	3		
Provide educational opportunities for adults engaged in agriculture-related occupations	M	67.0	65.8	66.1	65.7	65.4	64.1	66.0		
	SD	25.2	26.3	25.7	25.8	26.3	27.0	26.8	.12	.98
	R	4	4	4	4	4	4	4		
Include the use of record in the establishment of goals for the management of resources	M	72.0	69.1	70.6	70.8	73.5	71.0	71.1		
	SD	23.9	25.4	24.1	25.5	22.7	20.0	24.2	1.04	.38
	R	2	2	2	3	2	3	2		
Teach students to evaluate others' ideas and practices	M	54.1	52.8	51.2	53.6	54.7	54.0	53.6		
	SD	32.1	29.8	30.7	30.3	30.6	29.0	30.4	.26	.90
	R	5	6	6	6	6	6	6		
Show the relationship of agricultural occupations	M	62.8	63.8	63.5	62.5	61.5	63.0	62.8		
	SD	30.7	29.9	30.6	31.2	31.8	29.8	30.8	.21	.94
	R	5	5	5	5	5	5	5		

[a]Numbers represent the following groups: 1 = Students, 2 = Parents, 3 = Teachers, 4 = Principals, 5 = Government officials, 6 = Farmers and agribusiness persons.

[b]M = Group mean.

[c]SD = Standard deviations.

[d]R = Rank of mean among group means.

Table 17. Continued

Sub-principle		Groups[a]								
		1	2	3	4	5	6	Total	F-value	F-probability
Composite	M[b]	66.9	66.6	66.7	66.1	66.0	66.6	66.3		
	SD[c]	12.6	13.6	12.6	12.6	12.8	12.3	12.7	.37	.87

Table 18. Thirty most important sub-principles by total means

Items	Total mean N=1380	Factor
Teach students to contribute to food production.	83.0	3
Provide all students equal program opportunities.	75.3	5
Emphasize the contribution that agriculture makes to the meeting of consumer needs.	74.0	6
Emphasize community input in the development of agricultural education.	73.3	5
Provide educational opportunities for adults preparing for or entering into agricultural occupations.	73.2	5
Stress that agriculture is more than farming.	73.1	10
Emphasize community input in the development of agricultural education.	73.0	12
Provide students the opportunity to earn money through occupational experience.	73.0	10
Provide an opportunity for students to perform definite practices as a result of instruction.	72.0	6
Use problem solving as a method of learning.	72.0	3
Include a study of the conservation methods of natural resources.	71.8	3
Plan to supervise students' work more closely.	71.6	2
Define the role of agriculture in the state and national economy	71.6	9
Determine individual needs and interests.	71.5	8
Include the use of record keeping in the establishment of goals for the management of resources.	71.1	10
Emphasize honesty and respect.	70.9	3
Develop an awareness of agriculture's place in society.	70.8	5
Emphasize the conservation and use of human resources to sustain enterprise efficiency and human well-being.	70.7	10

Table 18. Continued

Items	Total mean	Factor
Provide students the opportunity to earn money through occupational experience programs.	70.3	10
Emphasize the importance of knowledge in setting and achieving goals.	70.3	9
Emphasize the conservation and use of human resources to sustain enterprise efficiency and human well-being.	70.1	3
Apply knowledge in attaining agricultural management skills.	69.8	5
Prepare students for leadership roles in agriculture and society.	69.8	4
Develop in students an awareness of agriculture's responsibility to society.	69.0	4
Include the application of technical information in marketing agricultural products.	69.0	3
Collect information and knowledge to aid in the problem-solving.	68.9	3
Develop an evaluation system other than examination conducted by West African Examination Council.	68.7	4
Assist students in assessing and coping with their personal strengths and weaknesses.	68.7	6
Emphasize setting and attaining goals.	68.6	6
Emphasize worth and workmanship by each individual in contribution to the welfare of the society.	68.5	2

most important sub-principles in Table 18. It was further observed that none of the sub-principles clustered around Factor Seven and Factor One were among the thirty most important sub-principles.

Major Findings

The following outline summarizes the major findings of this investigation.

1. It was observed that the states of Oyo, Anambra, Cross River, Ondo and Imo had more than 50 percent of all secondary agriculture programs in Nigeria.
2. Principals and teachers had more years of formal education than did parents. Government officials had more years of formal education than did principals. Farmers and agribusinessmen had the least amount of education.
3. Most respondents were undecided when asked if students enrolled in agricultural education in Nigerian schools should continue in an agricultural profession after high school graduation.
4. The mean secondary school enrollment included in the sample was 633 students, while the mean agricultural education school enrollment was 148 students.
5. Factor analysis of sub-principles revealed that the 90 sub-principles could be grouped into ten factors. The reliability coefficient for nine acceptable factors ranged from .67 to .86.
6. Group mean comparisons revealed that most of the sub-principles

were rated above 62.5 (much importance) on a 99 point scale.

7. "To teach students to contribute to food production" had the highest mean score when compared with the other 89 sub-principles studied.
8. Although the group means were similar for most sub-principles, the standard deviations for the group means were high. In the main, student mean scores were higher than the other group mean scores. Although slight differences were observed for sub-principle group means, no group mean scores were statistically different from other group mean scores.
9. Based on the list of 30 most important sub-principles, it was observed that "teaching students to participate in food production," "providing students equal program opportunities," "emphasizing the contribution that agriculture makes to meeting consumer needs," and "emphasizing community input in the development of programs for adults preparing for or entering an agricultural occupation" had the highest total mean scores.

DISCUSSION

Specific objectives of this study were to: 1) determine and analyze the degree of importance of selected groups of Nigerians about public school agriculture in Nigeria, 2) identify basic principles which underlie the degree of importance selected groups of Nigerians attach to public agricultural education programs, 3) describe basic principles for public school agricultural education in Nigeria, 4) recommend activities which can be followed to make public school agricultural education more adaptable, flexible and tuned to the needs of students and the local community.

The sub-principle items used for the study were modified sub-principle items used by the Department of Agricultural Education at the Iowa State University to assess importance levels of basic principles of agriculture and agribusiness education in Iowa. Six groups of people in 115 school community areas in Nigeria were selected for this study. Participants were asked to provide selected personal information and assign importance levels to 90 sub-principles using a 99 point scale. Data were collected with the help of agriculture teachers and student teachers who were on practical teaching assignments in secondary school systems throughout Nigeria.

The use of agriculture teachers and student teachers who were on practice teaching assignments provided some obvious advantages but also created some problems for this investigation. The participation of local teachers provided the investigator more flexibility in collecting

data necessary to satisfy the study objectives. Sample frames for students, parents, and farmers were available only upon visit to each school community. It would have been very difficult for the researcher to visit and compile sample listing for the desired groups of participants. Local agriculture teachers helped the researcher by reassuring participants that the data to be collected would be used for only research purposes. Making arrangements for group interviews and follow-up on members who did not attend the group interview sessions were the most time-consuming aspects of the group interview process. Teachers and student teachers were very enthusiastic and utilized the advantage provided by the investigation to establish contacts with new groups of community people.

The greatest limitation with the data collection plan was inherent in the involvement of many group interviewers. The investigator was not sure that the agriculture teachers exhibited as much interest in the group interview process as they would have if the student teacher had not been the investigator's contact person in the school community. The investigator observed more enthusiasm among teachers when they had to tell others what to do in the group interview process. The relationships between teachers and student teachers were very crucial in determining the success of the group interview plan. In the main, the teachers and the student teachers conducted the group interviews with much enthusiasm and a high degree of professionalism and the quality of the interview sessions was excellent.

The group interview technique helped the respondents to better

understand the items to which they were asked to react and helped them solidify their opinions toward each item. Restraining individual comments and projecting personal opinion was particularly difficult for the teachers and student teachers. In an environment such as in Nigeria, where many of the problems of the society are due to individuals not communicating with each other, where participation seemed hampered by lack of communication, the advantages of this approach to collecting information far outweighed the disadvantages. It was concluded that the group interview had more relevance in this investigation because the emphasis was placed on moving people to expressing their opinions based on equal understanding of the questions asked. The differences in individual opinions were revealed by the standard deviation values. The standard deviations reflected for a number of sub-principles studied rather large variations in respondent reactions to the sub-principles.

It is the opinion of the writer that the overall design of this investigation was sound and provided data upon which the investigator could draw conclusions and make recommendations about the objectives of the study.

It was observed that government officials had more years of formal education than did the teachers, principal and headmaster groups. One wonders, given the wide differences in the level of formal education between groups in the study, whether the perceptions of these groups will be similar enough to agree on plans and implementation strategies when using the results of this study to improve agricultural education

in Nigeria.

The number of respondents, irrespective of grouping, were almost equal in their opinions about whether students should continue in agricultural professions after finishing school. The largest group, however, did not know if students enrolled in agricultural education programs should continue in an agricultural profession after high school graduation. The large number of undecided opinions revealed that the choice of career for the students had not been seriously considered by the students and "significant others" with whom they associated. This observation raised several questions in the mind of the investigator. If students had not aspired to agricultural professions after three or four years of agricultural study in secondary schools (as shown in Table 3), when would they do so? Do students who enroll in agricultural education aspire to enter professions other than agriculture? Although the data were not collected to answer the question of choice of profession, it was felt by the investigator that students aspired to other more lucrative and more prestigious professions and that parents supported them in these aspirations. These observations seemed to confirm observations made by Fafunwa (12) and Lewis (25), that most students aspired to "white collar" occupations rather than agricultural occupations and their parents agreed with them.

Most schools that offered agricultural education had large high school enrollments. Large school enrollments provide principals and teachers the opportunity to enlarge their curriculum offerings and place more emphasis on the agricultural education component of the

school curriculum. One wonders whether teachers of secondary school agricultural education are adequately prepared to accept the responsibility of teaching agriculture. It was observed that most teachers had less than 15 years of formal education and had little or no teaching preparation.

The factor analysis conducted on the sub-principle items indicated that the 90 sub-principles in the interview schedule could be grouped into nine acceptable concepts. The number of concepts revealed seems to agree with the number of concepts discussed in the Iowa study (7). However, the investigator observed that the sub-principles did not quite factor out in the same way as in the Iowa study.

For Factor One, parents assigned higher levels of importance to "emphasizing meeting individual needs" than did all the other groups of people in the study. For the other sub-principles in the cluster, parents scored lower than students. In the main, students seemed to be stressing, more than any other group, the role of individual needs in curriculum development.

"Making continuous use of the human physical resources of the community" seemed to be the high priority of parents, whereas it was of lesser priority for students. All groups gave the highest importance rating to "planning to supervise students' work more closely." These high ratings by all groups, including the teacher group, were in reality expressing the "hew and cry" in the Nigerian educational system that the school system should plan to work with students as individuals to promote higher performance.

It was interesting to observe that students, teachers, principals and headmasters, and farmers and agribusiness people would like school programs to "emphasize personal financial security." Parents and government officials placed a lower level of importance on this sub-principle. Teaching students to contribute to food production had the highest mean ranking among the groups; however, the parent group importance mean score was the lowest for this sub-principle. It would appear that, inasmuch as parents support teaching students to contribute to food production, they were more apprehensive about the costs and the demand on students when students become involved in producing food.

As revealed from the group mean scores, teachers were less insistent than government officials on "utilizing individualized instruction in solving student problems." This observation is not hard to understand if one remembers that most agriculture teachers in the study placed high importance on technical agriculture and generally lower than expected importance on stressing individual needs.

It was noteworthy to observe that for "developing an evaluation system other than examination conducted by the West African Examination Council," parents placed the lowest level of importance when compared to the other groups studied. One could surmise that the other groups placed more prestige on the West African Examinations than did parents.

Principals, more than any other group, rated the importance of "providing all students equal program opportunities" highest, whereas government officials rated it lowest. This may be consistent with views expressed by government officials during the interview process

that providing equal program opportunities might make the program lack group focus. The assumption in herent in such a belief was that if all students were provided equal program opportunities, most students would be involved in the program and costs for the program would be high.

There was a tendency for teachers and principals to rate the importance of problem-solving sub-principles in Factor Seven low. This may be because of the fear some expressed about the implications such as teaching techniques would have on school time and long-term plans to fulfill activities specified in "syllabus."

In Factor Eight, individual needs was scored high; however, students placed a higher level of importance on this sub-principle than did any other group. The teacher group mean score was lowest for "determining individual student needs." The belief of teachers that they were the repository of knowledge might have influenced their ratings.

In Factor Nine, teachers as a group placed high importance values on "emphasizing real-life situations and experiences." This observation seemed inconsistent with observations in Factors Six and Seven where teachers tended to support highly structured school activities and requirements of school administrators. In the main, teachers seemed to doubt if individual needs were achievable in the light of the highly structured school curriculum.

To "teach students to evaluate others' ideas and practices" had the lowest overall group mean score among the 90 sub-principles. This observation suggests that evaluation was of less importance than

production activities and working individually with students to solve problems.

Most of the sub-principle items were scored above the minimum (much) importance level (62.5) by all groups. One could conclude that most of the sub-principles were rated as important to Nigerian public school agricultural education programs.

An important finding made in this investigation was that although student mean scores were slightly higher than any other group mean for most of the sub-principles, tests on group means did not reveal any statistical differences between the group means of the respondent groups included in this study. This observation strongly suggests that all members of the respondent groups consistently rated the importance of the 90 sub-principles in a like manner. The respondent groups were in general agreement about the importance of the 90 sub-principles. The high internal group differences, as reflected by the standard deviations, suggested that individuals varied not as groups, but as individuals.

The similarity in opinion between the groups of respondents was remarkably different from the findings made by the Iowa State University group who found students' opinions different from other members in that study (4, 6, 24, 26, 27). For one reason, data collection in the Iowa State University study was made by the use of the mail questionnaire rather than group interview. When responding to the mail questionnaire, individuals would be less influenced by group opinions than would have been the case if scoring of items were done in a group interview

situation. In the group interview process, individuals tended to ask questions and this might have resulted in a more uniform understanding of the items to which the group members were to respond.

Although the degree of discussions was limited by interviewers, the principal and government official groups tended to be more vocal in asking questions and making comments about sub-principle items. This tendency to start discussions might have been due to the perceived superior position of the principals and government officials. If actual opinions of the respondents were influenced by some members of the group, the group mean scores of these groups would have been different from the other groups. This was not the case. Rather, student group mean scores tended to be higher than any other group mean scores. It could be hypothesized that pooling of opinions had some affect on the group means, but that "superior" persons did not affect the opinions of "less superior" persons. It is safe to assume, however, that "superiority/inferiority" positions of respondents could not be established using the data collected for this study.

Description of Factors

The third objective of this study was to identify basic principles which undergird public agricultural education programs in Nigeria. The factor analysis provided clues to identify these underlying principles.

As was described in the Findings chapter, the factor analysis revealed ten factors around which the 90 sub-principles clustered. To identify the concept inherent in each factor, the investigator carefully

analyzed each of the sub-principles clustered around each factor and categorized them according to broad concepts.

It was anticipated by the investigator that all sub-principles in each factor would be related to a specific broad concept and that these concepts could be easily identified. This was not the case. For each of the factors, the investigator observed that a number of sub-principles were related and suggested a common concept or principle. The remaining sub-principles had little or no relationship to the concept identified. It became apparent that the factor analysis had suggested several concepts, but logic had to be applied to identify the remaining concepts.

To identify the "other" concepts, the investigator listed and categorized those sub-principles that were not related to the component of sub-principles that reflected the basic concept in the factor.

Listed below are sub-principles which, on the basis of logic and factorial analysis, were related and could suggest the concept undergirding the sub-principle.

Factor One

Considers students' personal interests, needs, desires and ambitions when determining curriculum activities.
Emphasize meeting individual student needs.
Involve student participation in reaching solutions to problems.
Emphasize the role of the individual price setting on agricultural produce.
Emphasize students' awareness of new developments in agriculture.
Emphasize that students are responsible for their own successes and failures both at school and later in life.
Plan experiences that involve competition among students.

Factor Two

Measure student performance by a set of standards.
Promote responsible citizenship.
Emphasize work and workmanship by each individual in contributing to the welfare of the society.
Emphasize the opportunity which Nigerian political system provides for free agricultural enterprise.
Include activities which allow students to become socially competent and active citizens.
Teach students how to participate in a democratic society.

Factor Three

Teach students to contribute to food production.
Collect information and knowledge to aid in the problem-solving process.
Emphasize personal financial security.
Use problem-solving as a method of learning.

Factor Four

Emphasize that skills can be learned only through personal experience
Utilize individualized instruction in solving student problems.
Evolve an evaluation system other than examination conducted by West African Examination Council.
Develop creative thinking skills.
Emphasize problem-solving.
Base instruction upon community needs.

Factor Five

Emphasize community input in the development of agricultural education.
Emphasize management of appropriate machinery and equipment.
Apply knowledge in attaining agricultural management skills.
Develop awareness of agriculture's place in society.
Provide educational opportunities for adults preparing for or entering into agricultural occupations.

Factor Six

Provide an opportunity for students to perform definite practices as a result of instruction.
Emphasize setting and attaining goals.
Assist students in assessing and coping with their personal strengths and weaknesses.

Assist students in realizing that goals cannot be achieved without developing strategies for achievement.
Emphasize activities that involve student decision making.

Factor Seven

Emphasize formulating and testing hypotheses in the problem solving process.
Emphasize problem solving which involves predominantly activity of students.
Emphasize problem solving which involves both physical and mental activity of problems.
Develop the knowledge and skills necessary for self-fulfillment of students.
Teach students to accept present situation and identify charges needed to achieve their goals.
Emphasize the accumulation of knowledge and experience for use in decision-making.

Factor Eight

Determine individual needs and interests.
Help students identify career opportunities in farming and off-farm agricultural occupations.
Develop leadership in individuals.
Base instruction on simulated problems.
Emphasize real-life situations and experiences.
Emphasize the importance of knowledge in setting and achieving goals.

Of those sub-principles that did not relate to the concept suggested by a specific factor, a large portion were related to the concepts suggested by the other factors and could logically be placed under these factors. Several sub-principles, however, were not related to any of the factor concepts, but as a group, formed new concepts.

Based on the information provided through the factor analysis logic and the categorization of nonrelated sub-principles, the following groupings of sub-principles were established.

Group A

Considers students' personal interests, needs, desires and ambitions when determining curriculum activities.
Emphasize meeting individual student needs.
Foster family and other interpersonal relationships.
Determine individual needs and interests.
Develop leadership in individuals.
Emphasize the development of the student as a whole person.
Prepare students for leadership roles in agriculture and society.
Base instruction on community needs.
Develop knowledge and skills necessary for self-fulfillment of students.
Help students identify career opportunities in farm and off-farm agricultural occupations.
Teach students to evaluate other's ideas and practices.

Group B

Promote responsible citizenship.
Emphasize work and workmanship by each individual in contributing to the welfare of the society.
Emphasize the opportunity which Nigerian political system provides for free agricultural enterprise.
Include activities which allow students to become socially competent and active citizens.
Teach students to participate in a democratic society.
Foster patriotism.
Emphasize group participation in agriculture through use of existing institutions.
Emphasize honesty and respect.
Emphasize conservation and use of human resources to sustain enterprise efficiency and human well-being.

Group C

Collect information and knowledge to aid in the problem-solving process.
Emphasize personal financial security.
Use problem-solving as a method of learning.
Utilize individualized instruction in solving problems.
Emphasize problem-solving.
Base instruction on simulated problems.
Utilize group instruction to solve problems common to specific groups of students.
Emphasize activities that involve student decision-making.

Emphasize problem-solving which involves predominantly activity of students.
Emphasize problem-solving which involves both physical and mental activity.
Base instruction on actual problems of students.

Group D

Emphasize management of appropriate machinery and equipment.
Apply knowledge in attaining agricultural management skills.
Develop awareness of agriculture's place in society.
Study the application of technical knowledge in processing agricultural production.
Include the application of technical information in marketing agricultural production.
Include a study of conservation methods of our natural resources.
Teach students to contribute to food production.
Study past, present, and future trends in Nigerian agriculture.
Include the use of records in the establishment of goals for the management of resources.
Emphasize students' awareness of new developments in agriculture.
Study governmental actions which affect agricultural management decisions.
Include understanding of management in the conduct of agricultural enterprises.
Include the use of goals for the management of resources.
Study governmental actions which affect agricultural management decisions.

Group E

Emphasize setting and attaining goals.
Assist students in assessing and coping with their personal strengths and weaknesses.
Assist students in realizing that goals cannot be achieved without developing strategies for achievement.
Emphasize activities that involve student decision-making.
Emphasize the importance of knowledge in setting and achieving goals.
Help students recognize and accept responsibility.
Develop creative thinking skills.

Emphasize formulating and testing hypotheses in the problem-solving process.
Emphasize that students evaluate the consequences to possible solutions to problems.
Teach students to evaluate their achievements in terms of their own values.

Group F

Show the relationship between agricultural occupations.
Stress that agriculture is more than farming.
Provide educational opportunities for adults preparing for entry into agricultural occupations.
Emphasize the influence of national politics on local decision-making in agricultural production and marketing.
Emphasize the opportunity which Nigerian political system provides for free agricultural enterprise.
Develop an appreciation and understanding of interrelationships of agriculture and national and local problems.
Emphasize development of personal and business relationships.
Develop in students an awareness of agriculture's responsibility to society.
Emphasize the contribution that agriculture makes to meeting consumer needs.
Emphasize the part natural resources and agriculture contributes to the use of leisure time.
Define the role of agriculture in the state and national economy.

Group G

Provide students with the opportunity to earn money through occupational experience programs.
Assign responsibilities which students can perform to develop self-confidence.
Emphasize the accumulation of knowledge and experience for use in decision-making.
Plan experiences that involve competition among students.
Include on-the-job experience that takes place on the farm or in the agricultural business location.
Plan to supervise students' work more closely.
Emphasize experience as a medium through which knowledge is acquired and skills and abilities are acquired.

Emphasize that skills can only be learned through personal experience.
Emphasize real-life situations and experiences.

Group H

Emphasize community input in the development of agricultural education.
Provide all students equal program opportunities.
Include modes of education that are informal.
Measure student performance by a set of standards.
Include a variety of course offerings and options for the student.
Make continuous use of human and physical resources in the community.
Develop an evaluation system other than examinations conducted by the West African Examination Council.
Include educational opportunities for the handicapped.

The third objective of this investigation was to describe the basic principles for public agricultural education in Nigeria based on the importance ratings by participants of the sub-principle items used in this study. All groups of participants scored the sub-principle items, apart from one, as being of "much importance" (62.5) to Nigerian public school agricultural education programs. The implication of the high importance rating of the sub-principles was that concepts implied by those sub-principles should be emphasized in Nigerian public school agricultural programs.

The factor analysis clustered sub-principle items which suggested some of the same underlying principles that were arrived at in the Iowa State University study.

There were indications provided in isolated studies in Nigeria that the same issues raised in the Iowa State study were already being

investigated and discussed in the Nigerian educational processes. The concept of equality of rights and treatment of individuals and opportunities have been discussed among Nigerian educators (33). The National Policy on Education (14) stated that the principle of egalitarianism: a belief that all men should have equal political, social, and economic rights, should be entrenched in the educational philosophy of Nigeria. That the Nigerian educational system should focus on solving individual and societal problems and producing food and fiber have been and currently are goals of the national education program.

From the experience of the investigator in teaching agricultural education in Nigerian secondary schools, the issues raised in the Iowa study are viable principles that should logically undergird Nigerian agricultural education programs. It should, however, be indicated that the extent to which each of the sub-principles and principle statements are emphasized depends on the particular circumstances in the society. A modified version of the Iowa State University principle statements is proposed for adoption for use in supporting agricultural education in Nigeria.

Basic Principles for Agricultural Education in Nigeria

Meeting individual and societal needs

Agriculture and agribusiness education is oriented toward (a) the biological and social needs of persons, and (b) the needs of the society for which the individual is being educated. Such education

is primarily concerned with assuring a continuing quality and quantity of raw and processed materials needed to supply basic human needs (food, clothing, shelter, etc.) and with the development of the knowledge necessary to enable the individual to understand the role of agriculture in the life of the nation and the world. Agriculture and agribusiness education likewise is concerned with serving the needs of individuals and groups in developing competence in individually satisfying and socially responsible knowledge, skills, and occupations leading toward individual fulfillment and social viability. Satisfaction with one's occupation is of great importance, both to the individual and to the efficiency of the productive process.

Needs, both individual and societal, should be determined by a cooperative process in which all concerned participate to the extent of their ability to do so. Among the individuals and groups that must be included in the process are students, teachers, parents, community representatives, and pertinent specialists. In the determination of the needs of the student, his views should receive major, though not exclusive, consideration. In determining the needs of society, additional expert judgment should perhaps play a much larger role than was the case in determination of individual needs. The society is made up of groups of individuals and societal and individual needs are not necessarily at conflict; they are complementary. Some needs are best satisfied by individuals acting separately while other needs are best satisfied by individuals acting in a group.

Participating in a democratic society

Democracy is a state of perfection sought by many nations and different nations, agencies are at different stages seeking the perfect "state." Many individuals seeking solutions to problems that are of individual as well as social nature are important to the problem-solving process in providing alternative solutions. Agriculture and agribusiness education is committed to democracy as a political and social philosophy and an educational methodology. This educational discipline recognizes that values and propositions are ultimately tested by their consequences in the lives of human beings. While the contributions of specialized expertise are vital, evaluation of decision making must eventually refer to the experience of those who are affected by policies and programs.

The fundamental obligation of agriculture and agribusiness education is to prepare the learner to become progressively better able to be self-directing--to choose and judge for oneself on the basis of the most intelligent consideration of the alternatives, and to assume responsibility and accountability to oneself and to the community for those decisions. It is recognized that the learner is not always able to determine what to study, direct his or her study, or unilaterally form character. Parents, the community, and the teacher have a definite responsibility to guide, and in an appropriate sense, discipline the education of the learner.

The democratic approach is necessary for agriculture and agribusiness education to fulfill its responsibilities both to the

individual and to society. Personal initiative, ability to formulate and test hypotheses, knowledge of the methods of inquiry, and understanding of the views of those with whom one disagrees are among the special abilities required in a free society. In a democracy, these capabilities are required in agriculture and agribusiness as they are in other fields of endeavor.

Learning to solve problems

Problem-solving as an approach to learning and method of teaching implies active involvement in discovering solutions to problems directly or indirectly relevant to the needs of the learner and the realities of society. This means that the learner must think for himself, make choices among different courses of action, and take responsibility for the consequences. The problem-solving process is an attitude of the mind cultivated by experience and practice. There are no ready-made answers to problems. Appropriate solutions can be found by trial, error and consequent learning.

Problem-solving differs in certain respects from memorizing or even understanding the accumulated bodies of knowledge per se. These bodies of knowledge are of enormous importance in problem-solving, but they are used as resources in the solutions of problems rather than the direct study of the particular body of knowledge itself.

Problem-solving involves a problem for which alternate courses of action are possible. It consists of a determination of the appropriate means to achieve the ends desired. Usually, such problem-solving

involves several phases such as: defining the problem, collecting information and knowledge, formulating hypotheses, testing hypotheses, judging the consequences, making a valid decision, and implementing the decision. Decision making through problem-solving is fully effective when the problem is genuine rather than manufactured, it is accepted by the student as a problem of importance, and the student participates with others in planning and directing the process by which the solution is reached.

In agriculture and agribusiness education, problem-solving is the optimum approach to learning and method of teaching, although not the sole approach or method. Problem-solving may incorporate both intellectual and physical activity. However, fundamental to all problem-solving is intellectual activity.

Producing and managing agricultural production

In agriculture and agribusiness education, subject matter is determined by individual and societal needs of the particular community and directed largely toward the management of the factors, forces, processes, and resources involved in the conduct of agriucltural enterprises. Theories, ideas, and concepts used as a basis for such activity are derived largely from individual experiences and experimental investigation including both the tested experiences of those engaged in agriculture and rigorous processes of the pertinent sciences.

Knowing and valuing

Agriculture and agribusiness education conforms to and concurs with the theory of knowing and valuing which refers thinking and action to all consequences to oneself and others as the final test of the true and the good. In this process, both the short and long range consequences should be considered. Ends and means can be distinguished, but they cannot separated in the sense that no ends can be achieved without the use of means, and every end, when achieved, leads to further consequences. Accordingly, to will the end and not the means is an exercise in futility, although in many situations, alternative means are possible.

In judging human ends and purposes, values as well as descriptive propositions (i.e., "If this, then that" statements) must be included. The source of values is human wishes, desires, and wants, but, as such, wishes, desires, and wants cannot be evaluated. A wish, desire, or want becomes a value when it has been examined in terms of the consequences. All such valuation takes place in a given context because in one situation an action may lead to one set of consequences, while in another situation, a different set of consequences. The consequences produced are judged good or bad in terms of our other values. As a result, it is impossible to judge all our values at once but any one can be isolated for evaluation. We judge our values in terms of (a) consistency with the rest of our value system, and (b) the consequences of the action to which the value will lead.

It is necessary to remember in any valuation process that we

undertake some activities because they are intrinsically enjoyable or interesting, whereas we undertake others because they are essential means to some ends which we prize. However, as stated above, no activity can be judged as good simply because it is enjoyable. It is first necessary to determine that the consequences of engaging in the enjoyable activity are good for all those involved. Long and short term consequences and actions must be considered.

Agriculture's relationship to other aspects of society

Agriculture and agribusiness education personnel recognize that we are living in an increasingly interdependent and interrelated world in which agriculture, along with every other significant enterprise, is closely interwoven with the entire economic and social structure of the community, the state, the nation, and the world. In such circumstances, it is necessary for the agricultural worker, and particularly the leaders of agriculture and agribusiness--both in their own interests and in the interests of others--to understand and appreciate the importance of these interrelationships.

It is also necessary for those within the industry and other members of society to understand and appreciate the importance of agricultural interrelationships in their world. Those engaged in agriculture must understand and cooperate with legitimate interest groups, each of which has its own conception of the public welfare. The relationship which agriculture in Nigeria has with other aspects of the society should be reflected in the conditions of health and happiness

of its citizens.

Providing flexibility and continuity

Agriculture and agribusiness education is characterized by flexibility and adaptability rather than rigidity in its attempt to enable the student to cope intelligently with constant and significant change. The individual is constantly confronted with problems of adaptation to an ever-changing environment. We are living in a world in which change is so rapid and so significant that education can never be regarded as conclusive or final. Accordingly, the need exists for a continuous reassessment of educational activities. However, this revision should proceed with due regard for the fact that even in the most revolutionary situation, a revision is characterized to a significant degree by continuity as well as by significant change. Adapting and changing agricultural education activities without interruption are important tests of agricultural education's success in meeting the needs of the individual and the society.

Learning through experience

Agriculture and agribusiness education has as a major premise that experience, whether good, bad, or indifferent, is the medium in which the human being lives and dies, and is the context in which learning occurs. Experience provides the medium through which the individual comprehends his world. For such experience, however, to be meaningful, the student must understand the relationship between what he does and the ensuing consequences.

Experiences can be vicarious as well as direct. The fundamental basis of tested knowledge incorporates a large measure of vicarious experiences. In agriculture and agribusiness education, the use of direct experiences is utilized to develop knowledge and skills and enhance understanding and retention of knowledge and skills.

In agriculture and agribusiness education, formal and informal instructional situations (classroom, laboratory, supervised occupational experience, etc.) are the means of providing vicarious and direct experiences. These experiences are based on present situations and conditions and past experiences of the learner. Living through activities promotes learning opportunities which agricultural education should encourage.

Suggested Activities which Could Make Agricultural Education in Nigeria More Adaptable to Local Conditions

The fourth and final objective of this investigation was to suggest activities which, if embarked upon, would make agricultural education in Nigeria more adaptable to local environments. The procedures described in the paragraphs below, followed in broad terms, the method adopted by the federal government of Nigeria during the 1969 curriculum conference in encouraging the participation of interested groups in curriculum development. Participation of diverse groups of people in curriculum planning will not only create awareness among people, but help to secure the much desired support for agricultural education in Nigeria.

Participation of groups of people can be achieved in a general forum or in panel discussions organized at local, state and national levels. The dialogue that would ensue would determine areas of consensus and differences between groups of people and help model acceptable ideas and programs in the different localities throughout the nation. The sub-principles and the principle statements included in this investigation would offer a starting point for such a dialogue.

To manage the active dialogue, an advisory board of agricultural education should be appointed by governments at local, state and national levels. The advisory boards should utilize the services of the human resources available in their own geographic areas. The advisory board would provide a "think-tank" for schools within the geographical area. The approach would begin at the grassroots and move up the political and educational hierarchy. In the past, educational policy has been dictated from the top down and has made agricultural education in Nigeria more and more theoretical and did not reflect student and societal needs. The more planning, implementing and evaluating of the programs which can be done by the people, the greater educational endeavors will reflect individual and societal needs.

The single influence that has shaped the curriculum in agricultural education in Nigerian public schools seems to have been the examinations taken at the end of courses in secondary schools. This need not be the case. Student interests, performance on individual farms and on-the-job training sites should be more important than the

mental examinations conducted at end of school year.

The retraining of teachers is important because the teacher will play an important role in the success or failure of a new program. The teacher should be educated to the broader definitions of agricultural education, how to instigate desired program changes, how to manage local resources to help students become established in farming, and how to become good citizens.

The broader definitions, implementation, and evaluation of new agricultural education programs will demand the commitment of the Nigerian society as a whole.

The basic principles of agricultural education should be ratified and committed to by many diverse groups: teachers' unions, student-bodies, the governments and parents.

Proper incentives should be worked out for all participants in the agricultural education programs. Most incentives would be applied at local, state and national levels in the form of recognition, citations, and certificates of merit to deserving participants.

A strategy which would be used to instigate a change in the agricultural education in Nigerian high schools is the construction of a well-thought out plan for curriculum development. An acceptable document on basic principles would provide a common cause, a rallying point of interest for people who want to change the agricultural education program in Nigerian public schools. Such a document would be used by curriculum specialists to generate appropriate teaching and learning goals and objectives subject to public dialogue and approval. The

curriculum building effort should be managed by the advisory boards at national, state and local levels and should make sure that there was wide participation and consensus at each stage. The national advisory, state and local advisory committees would inject learning goals and objectives that would satisfy national, state and local aspirations and assure that the objectives are not in conflict with individual interests.

Learning and teaching strategies for educating students and teachers would be planned by curriculum specialists under the auspices of the advisory boards. Method(s) of preparation, presentation, and motivation for each goal and objective must be specified and evaluated. Alternative teaching and learning plans would be suggested to make the programs flexible.

Learning sites for specified goals and objectives should be determined. If suitable learning sites in a local area are not available, two local sites could share one learning or teaching site.

Learning and teaching activities inside and outside of the classroom would be specified and evaluated from time to time by all interested groups of individuals and the results used for program improvement.

The agricultural education program as a whole in Nigerian public schools should be continuously discussed and evaluated by the specialists as well as interested lay persons to determine the extent to which the program met individual, local, state and national goals and objectives.

Coordination of all aspects of the curriculum development plan must be determined and proper provision made for it. Local, state and national advisory boards must establish channels for communication by the use of bulletins, memoranda, and visitation panels. All activities of persons in the agricultural education plan must be evaluated. Included in these evaluations should be members of the advisory boards; school adminstrators, teachers, principals, and students; and people in training sites. There should be opportunities for feedback between all persons associated with the agricultural education program and the results of evaluation used, not only to make program improvements, but for self-improvement of individuals.

The need for simplicity of goals, objectives, learning and teaching strategies, learning activities, evaluation and feedback methods must be stressed in all activities and in all agencies concerned with agricultural education programs in Nigerian public schools.

The findings in this investigation suggest areas for further research.

1. A need exists to determine the teaching and learning goals that can be derived from the widely accepted sub-principle and principle statements.
2. A need exists to determine the role of the student, teacher, principal and local farmer in achieving the goals and objectives referred to in item one above.
3. Efforts should be initiated to assess the use of the sub-principle and principle statement document in promoting lateral and

vertical communication among professionals, lay persons, students and parents.

4. A study should be made to determine what agencies will be needed to promote acceptance of these principles in Nigeria.
5. Finally, a study of these sub-principles should be conducted by geographic regions in Nigeria to identify differences in opinion that could impinge on the acceptance of the basic principles in these regions.

SUMMARY

A need exists for a change in the public school agricultural education program in Nigerian public schools. In fact, the need for public education has changed from emphasis on knowledge to emphasis on production and participation in leadership roles. Many Nigerian educators are concerned that public school agricultural education has done very little in finding solutions to practical problems which confront the individual and the society. It was the view of the investigator that the first step in changing the agricultural education curriculum in Nigeria was to determine the principles that should be emphasized in the agricultural education program. To determine these principles, the researcher developed a modified version of a questionnaire used by Iowa State University to determine the beliefs of selected people in Iowa about sub-principle statements that related to agricultural education. The modified questionnaire was administered to six selected groups of Nigerians including students, parents, teachers, principals/headmasters, government educational officials, farmers/agribusiness people. In all, 1380 people were surveyed in 115 locations throughout Nigeria.

The data were collected with the help of student teachers and agricultural science teachers. The respondents were requested to indicate the degree of importance of sub-principles in agricultural education in Nigeria.

One of the interesting questions asked the respondents was their felt need for students enrolled in agricultural education in Nigerian secondary schools to continue in an agriculture related occupation

after graduation from high school. Most respondents indicated they did not know. The investigator concluded, based on the above information, that uncertainty about career choice existed among agricultural education students in Nigeria.

The mean enrollment in agricultural education for secondary schools was 148 students and the mean school enrollment of 633 students was observed for schools included in the sample.

Factor analysis of sub-principle statements was undertaken to provide insights into logical grouping of the sub-principle items. Ten factor groupings were identified. Seven of the ten factors had reliability coefficients above .70.

Sub-principle group means, standard deviations, mean rankings within respondent groups, F-values and F-probabilities were used to summarize the importance expressed by the respondents for the sub-principles clustering around each of the ten factors. To "teach students to contribute to food production" (Factor Three) had the highest mean score of 83.0 on a 99 point scale. To "provide all students equal program opportunities" (Factor Five) was the second most important sub-principle. To "emphasize the contribution that agriculture makes to the meeting of consumer needs" (Factor Six) had the third highest mean score (74.0).

Of the 90 sub-principle statements included in the survey, only one fell below the "much importance" level (62.5). This pointed out the level of importance which selected groups of Nigerians attached to the sub-principle statements.

The analysis of variance tests on the 90 sub-principles revealed no significant differences among group means. This observation, coupled with the high consistency of mean rankings, indicated that the selected groups were consistent in their opinion about the importance of the sub-principle items.

It was observed that some of the sub-principles within each factor were related and suggested a common concept or principle. After careful analysis and study, the investigator was able to describe the concepts based on the ideas inherent in each of the sub-principles.

The method of curriculum change recommended in this study can create awareness of the need for curriculum review, support for a new program, and improve communications among professionals and lay persons in Nigeria.

In order to encourage local adaptability of agricultural education program, the investigator suggested that individual and community needs be emphasized in school programs and that the impact of mental examination in agricultural education be reduced and balanced with practical education.

The investigator recommends the immediate establishment of advisory boards for agricultural education at local, state and national levels between which should exist a high level of communication. Planning curriculum was recognized as a function of students, parents, teachers, principals, educational officials in government and employers.

The use of incentives, particularly of the intangible type, was

recommended to motivate participants to initiate new efforts to improve the agricultural education program.

When compared to the results of the Iowa study, selected groups of Nigerians rated the sub-principles more important than comparable groups in Iowa. Secondly, there was more consensus among the Nigerian groups of respondents than the selected groups in Iowa for sub-principle items included in the study.

The findings in the investigation suggested a need exists: (1) for governments to set up agricultural advisory boards at all levels to encourage dialogue among members of the Nigerian public to assist in refining the statement of basic principles developed in this study; (2) for the government to help move the curriculum development plan into subsequent stages of curriculum development (from philosophical beliefs to development of goals, objectives, learning activities, methods of teaching and learning, evaluation and feedback); (3) to encourage appropriate agencies to use the sub-principle document in promoting lateral and vertical understanding and acceptance of it among professionals, lay persons, students and parents; and (4) for all public schools in Nigeria to provide classroom instruction, experience learning and leadership in the community.

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APPENDIX A. SURVEY ON NIGERIAN PUBLIC SCHOOL AGRICULTURE EDUCATION

Code Number ____
(Parent form)

Directions: Do not write your name on the questionnaire. Please check (✓) only one item under a heading or fill in the blank.

Section 1. Demographic Data

1. State in which the student attends school _____

2. Name of local government area in which school is located
_____

3. What is your age? _____

4. What is your age category?

(1) Less than 30 years
(2) 31-40
(3) 41-50
(4) Over 50 years

5. What is your highest educational qualification?

6. Do you feel that students enrolled in agricultural education in public schools should continue in an agriculturally related profession when he leaves school?

___ (1) Yes
___ (2) Don't know
___ (3) No

Code Number _____
(Instructor)

Directions: Do not write your name on the questionnaire. Please check (✓) only one item under each heading or fill in the blank.

Section 1. Demographic Data

1. State in which your school is located _____

2. Name local government area in which school is located
_____

3. Which type of Agriculture Education program exists in your school?

____ (1) Agricultural science
____ (2) Vocational agriculture
____ (3) Both agricultural science and vocational agriculture
____ (4) Any other, name _____

4. What is the total enrollment of your school? _____ students.

5. What is the total enrollment in the agriculture classes in your school? _____ students.

6. What is your age? _____

7. What is your age category?
____ (1) Less than 30 years
____ (2) 30 to 40 years
____ (3) 41-50 years
____ (4) Above 50 years

8. What is your highest educational qualification?
____ (1) Teacher Grade II
____ (2) Nigeria Certificate in Education
____ (3) Higher National Diploma
____ (4) Bachelor of Science or Arts _____
____ (5) Post Graduate Diploma in Education _____
____ (6) Master of Science or Arts _____
____ (7) Any other, please specify _____

9. Do you feel that students enrolled in agricultural science in Nigerian public schools should continue in agriculturally related occupations? (1) Yes _____ (2) No _____ (3) Don't know ____

Code Number _____
(Principal/Headmaster)

Directions: Do not write your name on the questionnaire. Please check (✓) only one item under each heading or fill in the blank.

Section 1. Demographic Data

1. Are you male ____ or female ____?

2. State in which your school is located._____

3. Name local government area in which the school you attend is located.
_____

4. What type of agricultural education program is available in your school?
____ (1) Agricultural science
____ (2) Vocational agriculture
____ (3) Both 1 and 2
____ (4) Any other, name _____

5. What is the total enrollment in your school? _____ students.

6. What is your age? _____

7. What is your age category:
____ (1) Less than 30 years
____ (2) 31-40 years
____ (3) 41-50 years
____ (4) Above 50

8. What is your highest qualification?
____ (1) Nigeria Certificate in Education
____ (2) Bachelor of Science or Arts _____
____ (3) Post Graduate Diploma in Education _____
____ (4) Master of Science or Arts _____
____ (5) Other, please specify _____

9. Do you feel that students enrolled in agricultural education in Nigerian public schools should continue in agriculturally related occupations?
____ (1) Yes
____ (2) No
____ (3) Don't know

Code number _____
(Government staff)

Directions: Do not write your name on the questionnaire. Please circle your classification under each item or fill in the blank. (Mark only one item under each heading.)

Section 1. Demographic Data

1. State in which you are employed _____

2. Name of local government area in which you are employed _____

3. What is your age? _____

4. What is your age category?

____ (1) Less than 30 years
____ (2) 31-40 years
____ (3) 41-50 years
____ (4) Over 50 years

5. What is your highest educational qualification?

____ (1) Teacher Grade III
____ (2) Nigeria Certificate in Education
____ (3) Higher National Diploma
____ (4) Bachelor of Science or Arts
____ (5) Post Graduate in Education _____
____ (6) Master of Science/Arts _____
____ (7) Other, please specify _____

6. Are you (1) male ____ or (2) female ____?

7. Do you feel that students currently enrolled in agricultural education in Nigerian public schools should continue in agriculturally related occupations?

____ (1) Yes
____ (2) No
____ (3) Don't know

Code number _____
(Student form)

Directions: Do not write your name on the questionnaire. Please check (√) only one item under heading or fill in the blank.

Section 1. Demographic Data

A. State in which the school you attend is located _____

B. Name local government area in which the school you attend is located.

_____

C. What is your age? _____

D. In which type of agricultural education program are you enrolled?

____ (1) Agricultural science
____ (2) Vocational agriculture
____ (3) Both
____ (4) Any other, name _____

E. Do you feel that students enrolled in agricultural education should continue in an agriculturally related profession when you leave school?

____ (1) Yes
____ (2) No
____ (3) Don't know

F. What year are you in school? (circle the appropriate answer)

Form: 1 2 3 4 5

G. What is/was your father's occupation? _____

H. What is/was your mother's occupation? _____

I. What is/was your guardian's occupation? _____

K. Are you (1) male ____ or (2) female ____?

Thank you.

Code number _____
(Owners of agricultural
business and farmers)

Directions: Do not write your name on the questionnaire. Please mark (√) only one item under heading or fill in the blank.

Section 1. Demographic Data

1. Are you male ____ or female ____?

2. Name local government area where your business is located.

_____

3. What type of agriculture/farming business do you do?

_____

4. What is your age? _____

5. What is your age category?

____ (1) Less than 30 years
____ (2) 31-40 years
____ (3) 41-50 years
____ (4) Over 50 years

6. What is your highest educational level?

____ (1) First School Leaving Certificate (elementary 6)
____ (2) Form 3 secondary school
____ (3) West African School Certificate//Teachers Grade II
____ (4) Nigeria Certificate of Education/Higher National Diploma
____ (5) Bachelor of Science or Arts
____ (6) Post Graduate Diploma in Education
____ (7) Master of Science/Arts
____ (8) Other, please specify _____

7. Do you feel that students enrolled in Nigerian public schools should continue in agriculturally related occupations?

____ (1) Yes
____ (2) No
____ (3) Don't know

Section II

Directions: Respond to each of the following items in terms of its importance in agriculture education in Nigeria. If you think the item is of utmost importance, write "99" in the space in front of the item. If you think that the item is of no importance, write "1" in the space. Use any number between 1 and 99 to indicate the approximate importance of each item. Please respond to all items. Please look at the scale as you work out your position on each item. Your first reaction is what is needed.

When responding to the items below, please use the following scale:

Utmost importance		Much			Average			Little		No importance
99	90	80	70	60	50	40	30	20	10	1

Example:

Nigerian Public School Agriculture Education should:

86 1. Train students in agricultural skills.

35 2. Be made compulsory in schools.

Scale:

Utmost importance		Much			Average			Little		No importance
99	90	80	70	60	50	40	30	20	10	1

Nigerian Public School Agriculture Education programs should:

____ 1. Provide all students equal program opportunities.

____ 2. Teach students to evaluate others' ideas and practices.

____ 3. Include the understanding of management in the conduct of agricultural enterprises.

____ 4. Emphasize real-life situations and experiences.

____ 5. Base instruction upon simulated problems.

____ 6. Emphasize that skills can be learned only through personal experience.

____ 7. Include a variety of course offerings and options.

____ 8. Develop an awareness of agriculture's place in society.

____ 9. Emphasize activities that involve student decision-making.

____ 10. Include the use of record keeping in the establishment of goals for the management of resources.

____ 11. Emphasize problem solving.

____ 12. Assist students in assessing and coping with their personal strengths and weaknesses.

____ 13. Emphasize community input in the development of agricultural education.

____ 14. Stress that agriculture is more than farming.

____ 15. Emphasize the contribution that agriculture makes to meeting consumer needs.

____ 16. Include the application of technical information in marketing agricultural products.

____ 17. Measure student performance by a set of standards.

____ 18. Utilize group instruction to solve problems common to specific groups of students.

____ 19. Assist students in continual evaluation of progress toward personal goals.

____ 20. Provide educational opportunities for adults preparing for or engaging in agricultural occupations.

____ 21. Define the role of agriculture in the state and national economy.

____ 22. Determine individual needs and interests.

____ 23. Apply the knowledge in attaining agriucltural management skills.

____ 24. Plan to supervise students' work closely.

____ 25. Use problem solving as a method of learning.

____ 26. Teach students to evaluate their achievements in terms of their own values.

____ 27. Continually evaluate educational activities in order to bring about program improvement.

____ 28. Develop an appreciation and understanding of the interrelationships of agriculture and national and local problems.

____ 29. Include activities which allow students to become competent and active as citizens.

____ 30. Provide students the opportunity to earn money through occupational experience programs.

____ 31. Utilize individualized instruction in solving student problems.

____ 32. Emphasize the importance of knowledge in setting and achieving goals.

____ 33. Show the relationship of agricultural occupations to other occupations.

____ 34. Emphasize the value of work.

____ 35. Emphasize the part natural resources and agriculture contribute to the use of leisure time.

____ 36. Emphasize the opportunity which the Nigerian political system provides for free agricultural enterprise.

____ 37. Teach students to accept their present situation and identify changes needed to achieve their goals.

____ 38. Emphasize meeting individual student needs.

____ 39. Develop in students an awareness of agriculture's responsibility to society.

____ 40. Teach students how to participate effectively in a democratic society.

____ 41. Emphasize work and workmanship by each individual in contributing to the welfare of society.

____ 42. Emphasize group participation in agriculture through use of existing institutions.

____ 43. Emphasize problem solving which involves both physical and mental activity of students.

____ 44. Emphasize the development of the student as a whole person.

____ 45. Help students recognize and accept responsibilities.

____ 46. Emphasize honesty and respect.

____ 47. Emphasize the conservation and use of human resources to sustain enterprise efficiency and human well-being.

____ 48. Emphasize the accumulation of knowledge and experience for use in decision-making.

____ 49. Emphasize formulating and testing hypotheses in the problem-solving process.

____ 50. Emphasize that students are responsible for their own successes and failures both at school and later in life.

____ 51. Emphasize the students' awareness of new developments in agriculture.

____ 52. Prepare students for leadership roles in agriculture and society.

____ 53. Emphasize the influence of national politics on local decision-making in agricultural production and marketing.

____ 54. Plan experiences that involve competition among students.

____ 55. Base instruction upon community needs.

____ 56. Assist students in realizing that goals cannot be achieved without developing strategies for their achievement.

____ 57. Evolve an evaluation system other than examination conducted by West African Examination Council.

____ 58. Study the influence of natural elements (weather, disease, soil, etc.) in selecting agricultural enterprises.

____ 59. Emphasize experience as the medium through which knowledge is acquired and skills and abilities are developed.

____ 60. Develop creative thinking skills.

____ 61. Teach knowledge, skills, and abilities necessary for satisfying employment in specific agricultural occupations.

____ 62. Emphasize that students evaluate the consequences to possible solutions of problems.

____ 63. Help students identify career opportunities in farm and off-farm agricultural occupations.

____ 64. Study political and governmental actions which affect agricultural management decisions.

____ 65. Include on-the-job experience that takes place on the farm or in the agricultural business location.

____ 66. Involve student participation in reaching solutions to problems.

____ 67. Make continuous use of the human physical resources of the community.

____ 68. Develop leadership in individuals.

____ 69. Base instruction upon actual problems of students.

____ 70. Include educational opportunities for the handicapped.

____ 71. Provide educational opportunities for adults engaged in agriculture-related occupations.

____ 72. Foster patriotism.

____ 73. Emphasize the role of individual price setting on agricultural produce.

____ 74. Emphasize problem solving which involves predominantly physical activity of students.

____ 75. Include modes of education that are informal (newspaper, television, etc.).

____ 76. Emphasize setting and attaining specific goals.

____ 77. Assign responsibilities which students can perform to develop self-confidence.

____ 78. Collect information and knowledge to aid in the problem-solving process.

____ 79. Study the past, present, and future trends in Nigerian agriculture.

____ 80. Promote responsible citizenship.

____ 81. Foster family and other interpersonal relationships.

____ 82. Study the application of technical knowledge in processing agricultural products.

____ 83. Provide an opportunity for students to perform definite practices as the result of instruction.

____ 84. Emphasize the management of appropriate machinery and equipment.

____ 85. Consider the students' personal interests, needs, desires, and ambitions when determining curriculum activities.

____ 86. Emphasize personal financial security.

____ 87. Develop the knowledge and skills necessary for self-fulfillment of students.

____ 88. Emphasize the development of personal and business relationships.

____ 89. Include a study of the conservation methods of our natural resources.

____ 90. Teach students to contribute to food production.

APPENDIX B. TABLES SHOWING CORRELATION VALUES FOR MATRIX ITEM LOADINGS

Table 17. Correlation values for matrix item loadings in Factor One

Item	Correlation values
	N=1380
Emphasize the influence of national politics on local decision-making in agricultural production and marketing	.66215
Involve student participation in reaching solutions to problems	.61224
Emphasize the role of individual price setting on agricultural produce	.56824
Emphasize meeting individual student needs	.55573
Emphasize the students' awareness of new developments in agriculture	.54583
Emphasize that students are responsible for their own successes and failures both at school and later in life	.54129
Plan experiences that involve competition among students	.53564
Include on-the-job experience that takes place on the farm or in the agricultural business location	.51146
Consider the students' personal interests, needs, desires, and ambitions when determining curriculum activities	.50418
Foster family and other relationships	.45289
Provide an opportunity for students to perform definite practices as the result of instruction	.44953
Teach knowledge, skills, and abilities necessary for satisfying employment in specific agricultural occupations	.44440

Table 18. Correlation values for matrix of item loadings in Factor Two

Item	Correlation values
	N=1380
Emphasize that students evaluate the consequences to possible solutions of problems	.59729
Emphasize experience as the medium through which knowledge is acquired and skills and abilities are developed	.55642
Emphasize the opportunity which the Nigerian political system provides for free agricultural enterprise	.55454
Promote responsible citizenship	.54244
Plan to supervise students' work closely	.54205
Base instruction upon actual problems of students	.51715
Emphasize work and workmanship by each individual in contribution to the welfare of society	.50282
Measure students' performance by a set of standards	.47666
Make continuous use of the human physical resources of the community	.45948
Emphasize the development of the student as a whole person	.43965
Develop an appreciation and understanding of the interrelationships of agriculture and national and local problems	.40677
Include activities which allow students to become competent and active citizens	.40646
Teach students how to participate effectively in a democratic society	.38870
Help students recognize and accept responsibilities	.38268

Table 19. Correlation values for matrix item loadings in Factor Three

Item	Correlation values
	N=1380
Collect information and knowledge to aid in the problem-solving process	.64928
Emphasize personal financial security	.63645
Include the application of technical information in marketing agricultural products	.59096
Teach students to evaluate their achievements in terms of their own values	.54176
Emphasize honesty and respect	.49475
Include a study of the conservation methods of our natural resources	.48785
Use problem solving as a method of learning	.41238
Assign responsibilities which students can perform to develop self-confidence	.40787
Emphasize the conservation and use of human resources to sustain enterprise efficiency and human well-being	.40509
Teach students to contribute to food production	.38982
Emphasize the development of personal relationships	.33027

Table 20. Correlation values for matrix of item loadings in Factor Four

Item	Correlation values
	N=1380
Emphasize that skills can only be learned through personal experience	.60031
Utilize individualized instruction in solving student problems	.57963
Develop in students an awareness of agriculture's responsibility	.53994
Evolve an evaluation system other than examination conducted by West African Examination Council	.52471
Develop creative thinking skills	.47396
Emphasize problem solving	.43661
Prepare students for leadership roles in agriculture and society	.42284
Base instruction upon community needs	.40401
Include modes of education that are informal (newspaper, television, etc.)	.38265

Table 21. Correlation values for matrix of component loadings in Factor Five

Item	Correlation values
	N=1380
Emphasize the management of appropriate machinery and equipment	.64579
Apply the knowledge in attaining agricultural skills	.63298
Provide all students equal program opportunities	.51407
Assist students in continual evaluation of progress toward personal goals	.51242
Emphasize community input in the development of agricultural education	.49712
Develop an awareness of agriculture's place in the society	.45666
Continually evaluate educational activities in order to bring program improvement	.44744
Emphasize the value of work	.42450
Provide students the opportunity to earn money through occupational experience programs	.41022

Table 22. Correlation values for matrix of component loadings in Factor Six

Item	Correlation values
	N=1380
Study political and governmental actions which affect agricultural management decisions	.57683
Provide an opportunity for students to perform definite practices as the result of instruction	.53812
Study the past, present, and future trends in Nigerian agriculture	.52972
Assist students in realizing that goals cannot be achieved without developing strategies for their achievement	.47424
Emphasize setting and attaining specific goals	.42045
Assist students in assessing and coping with their personal strengths and weaknesses	.41271
Emphasize the contribution that agriculture makes to meeting consumer needs	.40888
Emphasize activities that involve student decision-making	.39260

Table 23. Correlation values for matrix of component loadings in Factor Seven

Item	Correlation values
	N=1380
Emphasize formulating and testing hypotheses in the problem-solving process	.62186
Foster patriotism	.61852
Emphasize problem-solving which involves predominantly physical activity of students	.55351
Emphasize problem-solving which involves both physical and mental activity of students	.47490
Emphasize group participation in agriculture through use of existing institutions	.45873
Develop the knowledge and skills necessary for self-fulfillment of students	.45530
Teach students to accept their present situation and identify changes needed to achieve their goals	.40921
Emphasize the accumulation of knowledge and experience for use in decision-making	-.38496
Include a variety of course offerings and options	
Develop an awareness of agriculture's place in society	.33344

Table 24. Correlation values for matrix component loadings in Factor Eight

Item	Correlation values
	N=1380
Utilize group instruction to solve problems common to specific groups of students	.76652
Emphasize the part natural resources and agriculture contribute to the use of leisure time	.68149
Determine individual needs and interests	.66446
Help students identify career opportunities in farm and off-farm agricultural occupations	.51676
Develop leadership in individuals	.40620

Table 25. Correlation values for matrix of component loadings in Factor Nine

Item	Correlation values
	N=1380
Define the role of agriculture in the state and national economy	.68966
Include the understanding of management in the conduct of agricultural enterprises	.65601
Base instruction upon simulated problems	.51673
Emphasize real-life situations and experiences	.41340
Emphasize the importance of knowledge in setting and achieving goals	.41086

Table 26. Correlation values for matrix of component loadings in Factor Ten

Item	Correlation values
	N=1380
Stress that agriculture is more than farming	.63693
Provide students the opportunity to earn money through occupational experience programs	.49213
Provide educational opportunities for adults engaged in agriculture-related occupations	-.44580
Include the use of record keeping in the establishment of goals for the management of resources	.37306
Teach students to evaluate others' ideas and practices	-.37072
Show the relationship of agricultural occupations to other occupations	-.36526

APPENDIX C. HUMAN SUBJECTS APPROVAL

INFORMATION ON THE USE OF HUMAN SUBJECTS IN RESEARCH
IOWA STATE UNIVERSITY
(Please follow the accompanying instructions for completing this form.)
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1. Title of project (please type): Perceptions of Nigerians on principles of agriculture educaton in Nigeria public schools.

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are properly protected. Additions to or changes in procedures affecting the subjects after the project has been approved will be submitted to the committee for review.

Emmanuel I Nwozuzu — Typed Named of Principal Investigator
10/2/84 — Date
Signature of Principal Investigator

Agricultural Education Dept Curtis Hall — Campus Address
4-5872 — Campus Telephone

3. Signatures of others (if any) | Date | Relationship to Principal Investigator

Otha C Kahler | 10/2/84 | Major Professor

4. ATTACH an additional page(s) (A) describing your proposed research and (B) the subjects to be used, (C) indicating any risks or discomforts to the subjects, and (D) covering any topics checked below. CHECK all boxes applicable.

- ☐ Medical clearance necessary before subjects can participate
- ☐ Samples (blood, tissue, etc.) from subjects
- ☐ Administration of substances (foods, drugs, etc.) to subjects
- ☐ Physical exercise or conditioning for subjects
- ☐ Deception of subjects
- ☐ Subjects under 14 years of age and(or) ☐ Subjects 14-17 years of age
- ☐ Subjects in institutions
- ☐ Research must be approved by another institution or agency

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5. ATTACH an example of the material to be used to obtain informed consent and CHECK which type will be used.

- ☐ Signed informed consent will be obtained.
- ☒ Modified informed consent will be obtained.

6. Anticipated date on which subjects will be first contacted: Month Oct, Day 28, Year 84

Anticipated date for last contact with subjects: Oct 30 84

7. If Applicable: Anticipated date on which audio or visual tapes will be erased and(or) identifiers will be removed from completed survey instruments: Jan 30 ~~84~~ 85
Month Day Year

8. Signature of Head or Chairperson | Date | Department or Administrative Unit

David L Williams | 10/4/84 | Agric. Education

9. Decision of the University Committee on the Use of Human Subjects in Research:

☒ Project Approved ☐ Project not approved ☐ No action required

George G. Karas — Name of Committee Chairperson
10/17/84 — Date
George G Karas — Signature of Committee Chairperson